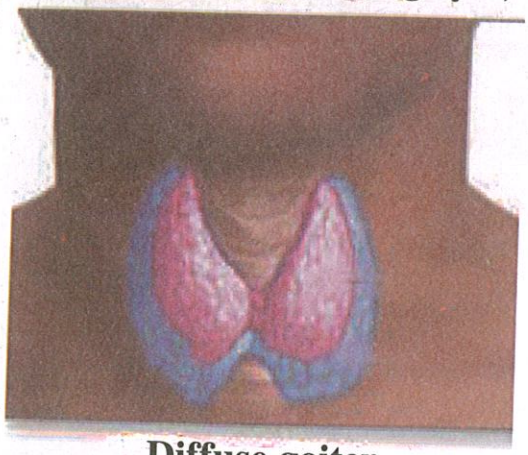
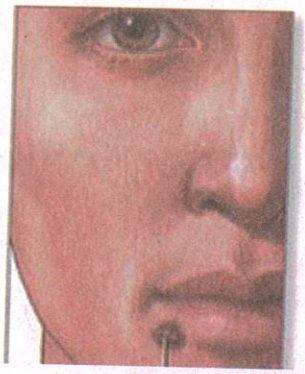
AN APPROACH TO
Clincal Surgery

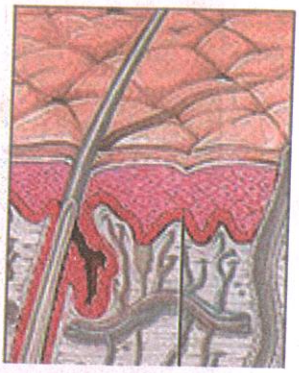
5th Edition

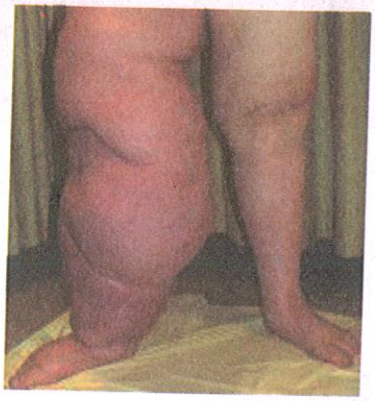
Exophthalmos (bulging eyes)



Diffuse goiter







Dr. Aly Hassib
Prof. of General & Pediatric Surgery
Faculty of Medicine
Cairo University

To my parents
& my family

PREFACE

There is nothing so distressing as to see good candidates with adequate knowledge repeatedly fail in examination for lack of sound examination technique. This book should prove to be a valuable source of guidance for those who need it.

The aim of this approach to clinical surgery is essentially to allow proper orientation of candidates towards examination skills & approaches.

I have described only the common conditions that you are likely to see in a surgical clinic. Indeed the whole book is presented in a manner similar to that used by most teachers when they are in the presence of the patient. Special investigations & treatment are completely excluded.

It has not been an objective to supply details of surgical operations; where needed, this information is readily available from specialist manuals.

Hopefully, it will prove its value as a comprehensive referance which can be easily digested during the short terms of clinical training & readily revised in the immediate pre-examination period.

THE AUTHOR:
A. Hassib

TABLE OF CONTENTS

	Page
General surgical case sheet	1
Swelling sheet	4
Ulcer sheet	8
Thyroid gland sheet	10
Breast sheet	13
Parotid sheet	16
Lymphadenopathy sheet	18
Swollen limb sheet	20
Inguinoscrotal swellings sheet	21
Varicose veins sheet	25
Ischemia & gangrene sheet	29
Nerve injury sheet	34
General abdominal sheet	39

GENERAL SURGICAL CASE SHEET

HISTORY TAKING

In one story; ask all then write all.

PERSONAL HISTORY

1. ***Name:*** (Triple), to be familiar with the patient, Identification, religion.
2. ***Age:*** Special predilection to special sex, diseases of sex organs.
3. ***Sex:*** Special predilection to special age groups.
4. ***Occupation:*** The present & previous occupation.
5. ***Residence:*** The present & previous residence & traveling abroad.
6. ***Marital state:*** single, married, divorced, widow. Number of children, age of the last one.
7. ***Special habits of medical importance.***

In females ask about menstrual & lactational history.

COMPLAINT

In the patient's own words.

HISTORY OF PRESENT ILLNESS

- Any positive symptoms: ask about onset, course & duration **(OCD)**.
- Arrange positive symptoms chronologically.

- Always ask about:
  1- **Swelling or ulcer**.
  2- **Pain**.
  3- **Disturbance of function**.
     I. GENERAL:
        a- Constitutional manifestations: Fever, Headache, malaise, Anorexia.
        b- Symptoms of metastasis:
           - Hemoptysis, cough, chest pain.
           - Bone aches, swelling, Pathological Fracture.
           - Jaundice, pain or swelling in right hypochondrium.
           - Blurring of vision, headache, vomiting.

        c- General manifestations of the local disease.
        d- Etiology of the local disease.
        e- Common associated diseases.

     II. LOCAL:
        a- Effect on near by **V**ein, **A**rtery & **N**erve **(VAN)**
        b- Effect on near by joint **(Bone)**.
        c- Discharge.
        d- Local manifestations.

  4- **Trauma**.
  5- **Investigations & treatment**.

PAST HISTORY

- Similar conditions.
- Chronic medical disease & treatments.
- Surgical diseases & operations.

FAMILY HISTORY

- Similar conditions.
- Hypertension, diabetes.

General Examination

- Conscious level, memory & behavior.
- Vital signs:
  - Blood pressure.
  - Temperature.
  - Pulse.
  - Respiratory rate.
- Decubitus & body built.
- Head & neck examination:
  - Jaundice, Pallor, Cyanosis.
  - Neck veins, Lymph nodes.
- Upper & lower limb examination:
- Chest & cardiac examination.
- Abdominal examination.

Importance of general examination:

1- Local lesion may be first stage of general disease.
2- Local lesion may give general manifestations.
3- Other unrelated diseases.
4- Fitness for surgery.

Local Examination

Use eyes first & much, hands next & little and tongue not at all

1- Inspection.

2- Palpation.

3- Percussion:

✪ **GENERAL RULES OF PERCUSSION.** (Fig 1)

1- On the middle phalynx by the middle finger.
2- Move from the wrist & don't rest.
3- Start from an area of known resonance.
4- Parallel to the expected border of the swelling.
5- ***Comment:*** if there is dullness. See if it shifts with position (shifting dullness) or respiration (tidal percussion), if it is continuous or interrupted resonance or continuous with dullness of known organ.

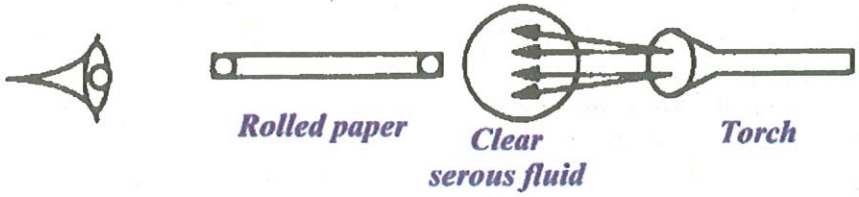
Rules of percussion (Fig 1)

4- Auscultation:

Systolic bruit e.g. in aneurysm.
Machinery murmur in A.V. fistula.

5- Transillumination: **(For cystic swellings)**

First determine normal skin illumination.
Translucent if cystic swelling with clear fluid & thin wall. (fig.2)



(Fig 2)

REMEMBER

➢ **Age:**

- Neonate: 0 – 1 month.
- Infancy: 1month -2 years.
- Childhood: 2 – 12 years.
- Adolescence: 12 – 20 years.
- Adulthood: 20 – 40 years.
- Middle age: 40 – 60 years.
- Old age: > 60 years.

➢ **Modes of onset:**

- Since birth.
- Acute (sudden: hours, rapid: days).
- Gradual or chronic.
- Insidious: very gradual.
- Accidentally discovered.

➢ **Types of course:**

- Progressive (neoplastic).
- Regressive (traumatic, inflammatory).
- Stationary (chronic inflammation).
- Remissions & exacerbation (chronic inflammation with acute exacerbation).

You can take the pregnant uterus as a speedometer, rapidly growing & lipoma as very slowly growing.

➢ **In pain ask about:**

- Onset, course & duration.
- Type.
- Radiation.
- Precipitating or relieving factors.
- Associated symptoms.

Diagnosis

1. ***Anatomical:*** system involved.
2. ***Pathological***: congenital, traumatic, inflammatory or neoplastic.
3. ***Possible etiology.***
4. ***Functional state:*** system failure, complications & fitness for surgery.

SWELLING SHEET

HISTORY TAKING

PERSONAL HISTORY

COMPLAINT Swelling + its site.

HISTORY OF PRESENT ILLNESS

- **Swelling.**
- **Pain.**
- **Disturbance of function:**
  - ★ ***General:***
    - Constitutional manifestations.
    - Symptoms of metastasis.
    - General manifestations e.g. in case of thyroid sheet ask about toxic manifestations.
    - General etiology e.g. in case of: lymphadenopathy, ask about causes of lymph node enlargement.
    - Common associated disease e.g. in case of: hernia ask about mesenchymal defects.
  - ★ ***Local:***
    - VAN.
    - Bone if swelling is related to joint.
    - Local manifestations e.g. in case of: breast ask about skin manifestations of carcinoma.
    - Discharge e.g. in case of: breast sheet.
- **Trauma.**
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

General examination

As usual.

Local examination

Inspection: 8 S

- Site.
- Shape: Regular or irregular, (axis if oval). (fig. 3)

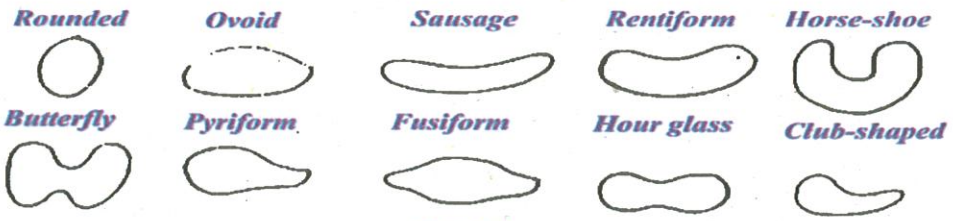


Fig. (3)

- Size (in cm).

➢ Surface: smooth, nodular or irregular. (fig. 4)

Fig. (4)

➢ Skin: dilated veins, redness, scars, sinuses or ulceration.

➢ Special character:
1. Impulse on cough.
2. Pulsations (look tangentially) e.g. aneurysm, highly vascular tumor & toxic goiter.
3. Impulse on cough.
4. Mobility with deglutition, protrusion of the tongue & respiration.

➢ Surrounding structures:
1. Ask the patient to contract his muscle:
   a) The swelling increases if superficial to the muscle.
   b) The swelling decreases if deep.
   c) No change (intramuscular).

2. Effect on near by **V**ein, **A**rtery & **N**erve **(VAN)**

➢ Other Swellings:
Draining lymph nodes: if the swelling is lymph node, look for the catchment area.

✪ Palpation: *TT 4S CE 3S*

➢ **T**enderness, **T**emperature.
➢ **S**ite, **S**ize, **S**hape, **S**urface.

➢ **Consistency:** either cystic or solid.
*1. **Cystic:*** diagnosed by:
a. Fluctuation test: in 2 perpendicular directions as muscle is fluctuant in transverse axis.
b. Paget test (fig. 5) if swelling is:
- Too small (<2cm).
- Tender.
- Deep.

Fix the swelling & compress in middle & peripherally. If center more yielding → cystic.

(Fig 5)

*2. **Solid:*** it is soft, hard or firm.

➢ **Edge:**
1. Well defined → benign
2. Ill defined: → malignant or inflammatory

➢ **Special character:**
As inspection + compressibility, reducibility & thrill.

(1) **Pulsations**: Expansile = in all directions e.g. aneurysm & vascular tumor or transmitted = in one direction e.g. swelling over an artery. To differentiate: (fig. 6).

a- Put two fingers slightly apart over the swelling and observe the distance.
b- Put the swelling away from the vessel.

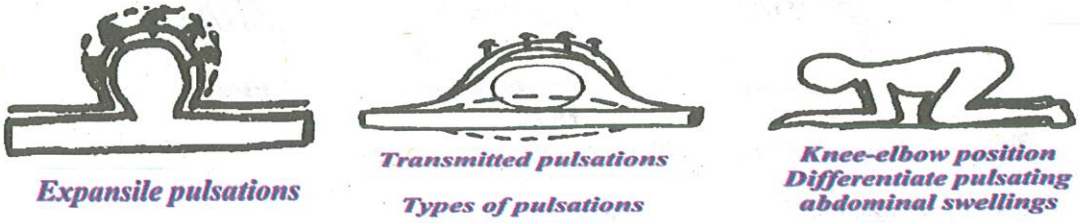


Fig. (6)

(2) Compressibility & reducibility: partial or complete e.g. hernia, angioma & saphena varix.
(3) Expansile impulse on cough: in swelling continued with abdominal cavity (hernia) pleural cavity (empyema necessitans) spine or cranium (meningocele).
(4) Thrill e.g.
a. With A-V fistula (machinery).
b. Aneurysm (systolic).

➢ **Surrounding structures:**
- Skin (by pinching or sliding)
- VAN.
- Muscles (خرزة في حبل، عقدة في حبل) (Fig. 7).

Fig. (7)

a) If superficial test the mobility while the Muscles is relaxed & contracted.
b) If deep Pinch the Muscles.
c) If intramuscular: Loss of mobility on contraction.

- Relation to deep long structures e.g. trachea & spermatic cord. (خرزة في حبل، عقدة في حبل)
- Bone (if fixed, no mobility in all directions)

✪ **Percussion, Auscultation, Transillumination:** As general

Diagnosis

1. ***Anatomical:*** site of the swelling.
2. ***Pathological:*** congenital, traumatic, inflammatory or neoplastic.
3. ***Possible etiology.***
4. ***Functional state:*** complications & fitness for surgery

Important notes

1. Difference between true & false cyst: false cyst is devoid of lining membrane.
2. **Fluctuant swelling** may not be so if it is: too deep, too tense (hard), too small (Paget's).
3. **Non-fluctuant** swelling may give the impression of being so if it is: very soft, very elastic & very mobile (hence the fixation) as lipoma & myxoma.

4. Relation of trauma to the swelling:
- a- Immediately: hematoma.
- b- Next day: reactionary edema.
- c- Few days later: non-specific infection.
- d- Few weeks later: sarcoma of lower end of femur may follow trauma.
- e- Direct attention to a swelling already present.

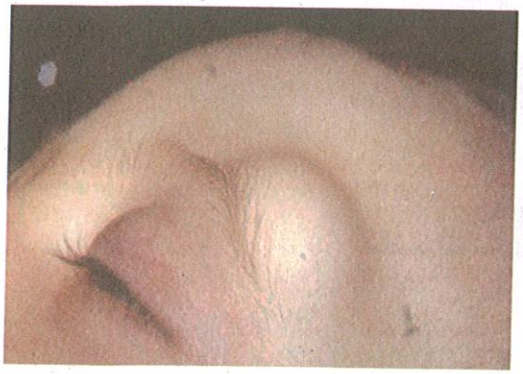
5. Compressible swelling will disappear partly or completely on pressing the whole swelling & it will return to its normal size on releasing pressure.

6. Reducible swelling will disappear partly or completely on pressing in a certain direction & reappears only on straining

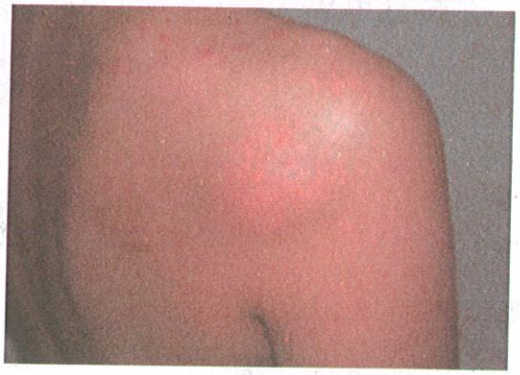
7. In any **parotid swelling** examine: facial nerve, superficial temporal pulsations, opening of parotid duct.

8. In any **submandibular swelling** examine: lingual &hypoglossal nerves, facial pulsations, opening of submandibular duct.

9. Contraction of some important ms:
- a. Sternomastoid: Deviation of head to the contralateral side or flexion of head against resistance.
- b. Masseter: clenching teeth.
- c. Mylohyoid: elevating the tip of the tongue against the hard palate.
- d. Trapezius: elevate the shoulder against resistance.
- e. Pectoralis major: push the hand against the waist.
- f. Serratus anterior: push the wall or the shoulder of the examiner.



External angular dermoid



Lipoma in posterior aspect of shoulder

ULCER SHEET

HISTORY TAKING

PERSONAL HISTORY

COMPLAINT Raw area or sore (mention site).

HISTORY OF PRESENT ILLNESS

- Onset, course & duration of the **ulcer.**
- **Swelling.**
- **Pain.**
- **Disturbance of function:**
  - ★ ***General:***
    - Constitutional manifestations.
    - Symptoms of metastasis.
    - General etiology: T.B., syphilis, VAN & hemolytic anemia.
  - ★ ***Local:***
    - Discharge.
- **Trauma.**
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

General examination

As general

Local examination

✪ **Inspection:** ***4 S MED 2 S***

- **S**ite.
- **S**hape (axis if oval).
- **S**ize (in cm).
- **S**urface (floor): Part seen in the depth of the ulcer It may be cover with sloughs granulation tissue. (healthy or unhealthy)
- Margin = the junction of the normal skin with the edge. It may show evidence of the causative disease e.g. inflammation. T.B. varicosities or malignant nodules.
- Edge: junction between raw surface & intact epithelium (fig. 8).

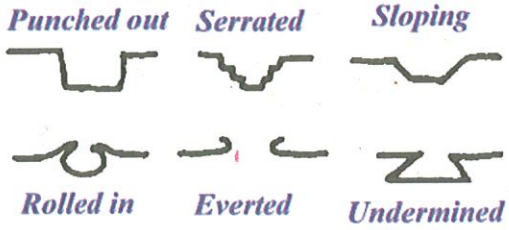


Fig. (8)
Types of edges.

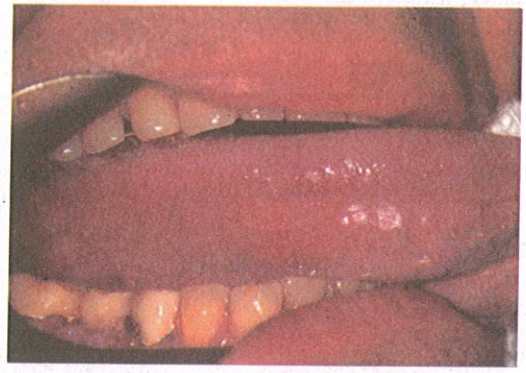
- **D**ischarge (in the dressing)
- Other **S**wellings: Draining lymph nodes.
- **S**urrounding structures: VAN

✪ **Palpation:** ***TEB 2 S*** (Use gloves)

- ➢ **T**enderness.
- ➢ **E**dge.
- ➢ **B**ase (mass of tissue beneath & around the ulcer) felt but not seen.
- ➢ Other **S**wellings.
- ➢ **S**urrounding structures:
  - Mobility: to detect fixity to bone.
  - Skin: can you pass a probe between the edge & skin (in ulcerating benign tumor).
  - VAN.

Diagnosis

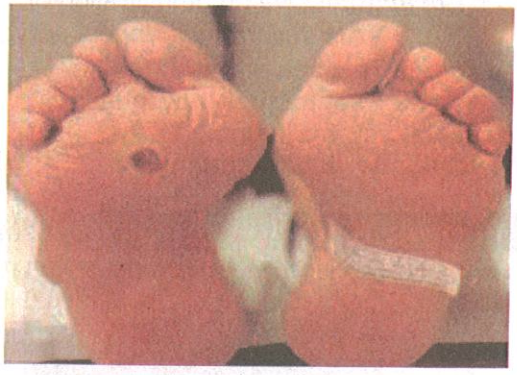
1. ***Anatomical:*** Site. .
2. ***Pathological & etiological:*** e.g. traumatic, inflammatory or neoplastic.
3. ***Functional:*** Complications & fitness for surgery.



Traumatic ulcer of tongue

Rodent ulcer of face
(look to the rolling edge)

Traumatic ulcer of leg



Trophic ulcer of foot in diabetic patient

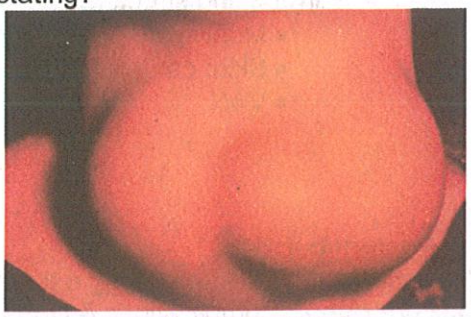
THYROID SHEET

HISTORY TAKING

PERSONAL HISTORY As usual + is the patient pregnant or lactating?

COMPLAINT e.g.

- Swelling in the lower part of front of neck.
- Toxic manifestations.



Nodular goitre

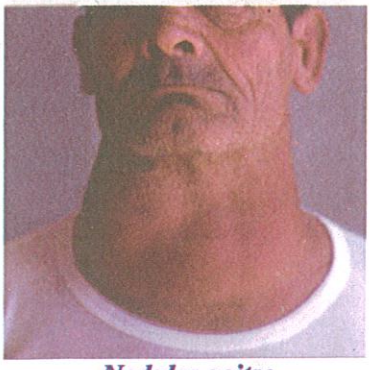
HISTORY OF PRESENT ILLNESS

- **Swelling.**
- **Pain.**
- **Disturbance of function:**
  - ★ ***General:***
    - Constitutional manifestations.
    - Symptoms of metastasis.
    - General manifestations: Toxicity or hypothyroidism.
      - ♦ ***Toxic manifestations:***
        - **CNS**: Nervousness, irritability, insomnia.
        - **CVS**: palpitation, arrhythmia. H.F.
        - **GIT:** increased appetite. loss of weight, diarrhea.

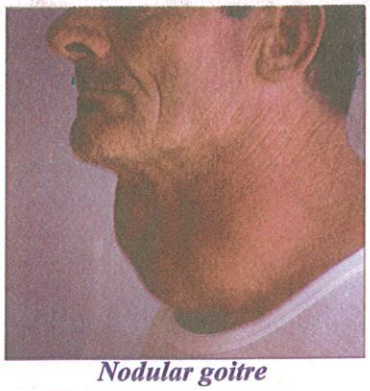
        N.B.: Diarrhea occurs also in medullary carcinoma.

        - **Skin:** Intolerance to hot, sweating.
        - **Muscle:** general fatigue, tremors (fall of cups).
        - **U.T.** Polyuria.
        - **Male:** Infertility, impotence.
        - **Female:** Menstrual disturbances, repeated abortions.
      - ♦ ***Symptoms of hypothyroidism.***
        - **CNS:** slow cerebration, slow speech (ask relatives).
        - **GIT:** constipation, weight gain.
        - **Skin:** Loss of hair, puffiness of eye lids, intolerance to cold.
        - **Muscle:** Fatigue (Tiredness)
        - **Female:** Menstrual disturbances.
  - ★ ***Local:*** (pressure on or infiltration of…)
    - **VAN:** recurrent laryngeal nerve → hoarsness.
    - **Trachea** → dyspnea.
    - **Esophagus** → dysphagia.
- **Trauma:** psychic trauma.
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual



Nodular goitre



Nodular goitre

General examination

➤ **Vital signs:** don't forget the pulse.

Loss of wrinkling of forehead — *- Infrequent blinking - Lid retraction.* — *Lack of convergence* — *Lid lag*

Eye signs of thyrotoxicosis

Fig. (9)

Ruler test:
Examiner uses a ruler & tries to rest its edge in front of eye ball on the supraorbital edge & zygoma, normally it doesn't touch the cornea.

Naffzinger's sign:
While patient is seated with head tilted backwards, examiner stands behind him & looks at a plane of supracilliary ridge. Normally, the eyeball is in same plane

Fig. (10)

➤ **Head and Neck:** Eye signs (fig. 9&10), secondaries (fleshy), loss of outer 1/3 eye brow, jaundice, Horner syndrome, tremors of the tongue & upper eye lid, congested neck veins.
➤ **Upper limb examination:** Tremors, worm sweaty hand.
➤ **Chest**: Wheezy chest in smokers crepitations (HF), secondaries.
➤ **Cardiac examination:** Arrhythmias.
➤ **Abdominal examination:** Hepatomegaly (H.F. & secondaries) splenomegaly (with autoimmune diseases and lymphomas).
➤ **Lower limb examination:** ankle reflex, preibial myxedema, edema (H.F.).

NB: Horner Syndrome:
a. Ptosis. b. Miosis. c. Anhydrosis. d. Enophthalmos.

♦ ***Sites of tremors:***
a- Outstretched hand.
b- Slightly closed upper eyelid.
c- Protruded unsupported tongue.

Local examination

✪ **Inspection:** as swelling:
- ➢ **S**ite: muscular triangle.
- ➢ **S**hape.
- ➢ **S**ize (in cm).
- ➢ **S**urface: smooth, nodular or irregular.
- ➢ **S**kin: dilated veins, redness, scars, sinuses or ulceration.
- ➢ **S**pecial character:
  1- Impulse on cough.
  2- Pulsations.
  3- Mobility with deglutition & protrusion of the tongue.
- ➢ **S**urrounding structures:
  Ask the patient to contract sternomastoid muscle.
- ➢ Other **S**wellings: Draining lymph nodes.

✪ **Palpation:** As swelling
Normal gland is not palpable
Position: (fig 10):
- **a. From front** 1. Crile's method. (small gland). 2. Lahye's method.
- **b. From behind:** Routine. Flexion of the neck to relax the pretrachial muscles and fascia. The thumb upon the nape.

Fig. (10)

Methods of thyroid palpation

- ➢ **Tenderness**: in thyroiditis & cyst hemorrhage.
- ➢ **Consistency**: Homogenous or heterogenous.
- ➢ **Edge**: lower edge (felt or not).
- ➢ **Surrounding structures**:
  - Skin: by pinching.
  - Trachea: deviated or not – fixed or not.
  - Sternomastoid muscle: pinch the sternomastoid during deglutition.
  - Carotid artery:
    - Normal: not displaced & not absent.
    - Displaced: large benign tumor.
    - Absent: malignant tumor (Berrey's sign).
- ➢ **Special character**: as inspection + trill (upper pole).

✪ **Percussion:** On the manubrium & 1st intercostal space & sternal edges of ribs.

✪ **Auscultation:** Systolic bruit in thyrotoxicosis (upper pole).

Diagnosis

1. ***Anatomical:*** Thyroid gland (whole gland or one lobe).
2. ***Pathological:*** Simple goiter is diagnosed by exclusion.
3. ***Possible etiology.***
4. ***Functional state:*** System failure, complications & fitness for surgery

REMEMBER

Q. How to diagnose retrosternal goiter?

Ask the patient to raise up both arms or to tilt her head to one side strongly & keep this position for a while; congestion of face & distress due to obstruction of great veins & trachea at thoracic inlet.

Fig. (11)

Neck swellings move with deglutition:

Thyroglossal cyst, Cervical ectopic thyroid, Prelaryngeal & pretracheal lymph nodes, Subhyoid (Adam's apple) bursitis, Parathyroid swelling.

Thyroid swelling does not move with deglutition:

Fixed by malignancy, Reidel's thyroiditis, Scarring of previous operation, Huge retrosternal goiter.

Thyroglossal cyst & subhyoid bursitis: move with deglutition & protrusion of tongue.

Hard thyroid swelling:

- Carcinoma, Calcification in nodular goiter, Tense cyst, Riedel's thyroiditis.

Neck swelling with expansible impulse on cough & compressible:

- Laryngocele.
- Pharyngeal pouch.
- Pneumocele.

BREAST SHEET

HISTORY TAKING

PERSONAL HISTORY As Usual + Menstrual & lactational history

COMPLAINT e.g. Swelling, Pain or Discharge.

HISTORY OF PRESENT ILLNESS

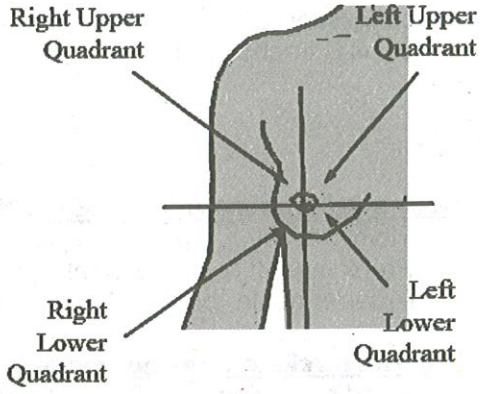
- **Swelling.**
- **Pain.**
- **Disturbance of function:**
  - ★ ***General:***
    - Constitutional manifestations.
    - Symptoms of metastasis.
    - General etiology: T.B.
  - ★ ***Local: (upper limb)***
    - VAN: edema of upper limb.
    - Local manifestations: skin manifestations of breast carcinoma.
    - Discharge (character & odor).
- **Trauma.**
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

General examination

As general

Local examination



Golden rules: (in any bilateral organ)

1- Expose both.
2- Always compare between both sides.
3- Always start by examining the normal side.
4- Don't forget the back (undersurface).

Inspection:

- ***Positions:*** fig. (12) Upper half exposed. Back covered.

1- Sitting with both arms beside her trunk.
2- Sitting with both arms elevated; more marked breast lumps & skin dimples. Also when breast is tethered to the chest wall it become higher.
3- Pressing on both hips with both hands (dimples & abnormal movements of nipples).
4- Leaning forward (failure of the nipple to fall away from the body = abnormal fibrosis behind).

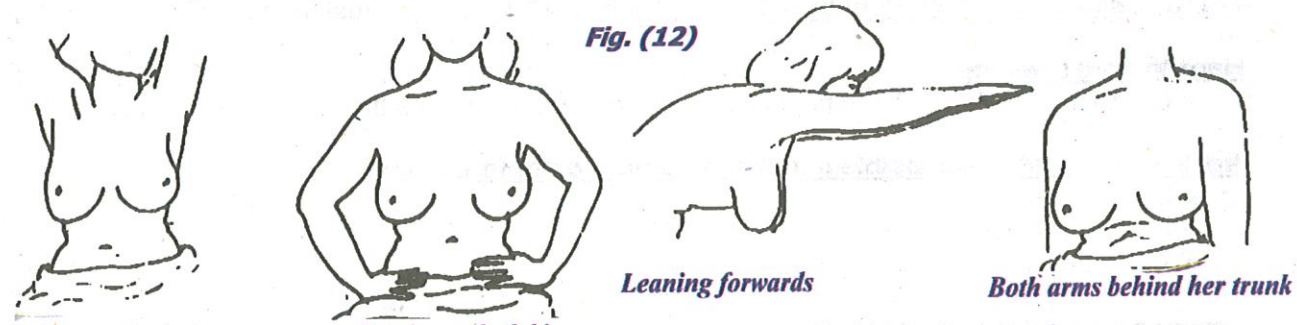


Fig. (12)

Positions of examination

- ***Then Comment on:***

1. **Breast:** • Level. • Skin. • Symmetry. • Contour.
2. **Nipple:** not retracted or eroded.
3. **Areola:** • Size & swelling. • Eczema.
4. **Mass:** comment as usual.
5. **Axillary & Supraclavicular lymph nodes.**
6. **Contralateral breast & axilla.**

Palpation:

Normal breast on palpation is soft smooth under the flat of the hand & gives a firm lobulated impression with nodularity features when palpated between fingers & thumb).

- **Position:**

- In semi-setting or supine position.
- Quadrant by quadrant, retroareolar, axillary, & supraclavicular L.N.
- You can ask the patient to locate the lump before starting palpation.
- Palpate by flat of the hand & finger tips.

Relation of mass to breast tissue

Fig. (13)

- **Then Comment on:**

1. **Mass:** as usual.
   - Surface: don't forget the under surface.
     Globular = benign
     Flat = carcinoma.
   - Edge: well circumscribed.

- Relation to the surrounding:
  1. Skin.
  2. Breast tissue: (fig. 13) pull the breast to one side and push the mass to opposite side if it moves → mobile, if not → fixed.
  3. **Muscle and fascia:** (fig. 14) Pectoralis major, serratus anterior (if the swelling lies in the lower outer quadrant).

     Examine the mobility while the muscle is relaxed then contracted.

     During relaxation, if the swelling is attached to muscle it will move in one direction & if attached to the fascia it will move in the two directions. During contraction: if attached to the muscle or fascia: limited mobility in all directions (More limitation if attached to the Muscle).
  4. Bone.

Relation of the swelling to pectoralis major muscle: Ask the patient to push her hands firmly, then feel the anterior fold of the axilla to be sure that the muscle is contracted

Fig. (14)

Relation of the swelling to serratus anterior muscle: The patient puts her outstretched hands upon your shoulders and press firmly.

2. **Nipple & areola:** retraction, discharge & its source (by differential pressure test).
3. **Axillary & Supraclavicular lymph nodes:** of same & opposite side.

Diagnosis

The surgeon's duty is to consider any breast lump malignant till proved otherwise

1. ***Anatomical:*** right or left, which quadrant?
2. ***Pathological & etiological***
3. ***Functional:*** Presence of complications, clinically fit for surgery
   In case of carcinoma, mention the stage.

PAROTID SHEET

HISTORY TAKING

PERSONAL HISTORY

COMPLAINT Swelling in the side of the face.

HISTORY OF PRESENT ILLNESS:

- **Swelling:** relation to sour food & drinks.
- **Pain:** relation to sour food & drinks.
- **Disturbance of function:**
  - ★ ***General:***
    - Constitutional manifestations.
    - Symptoms of metastasis.
    - General etiology: T.B., parasites, D.M., drugs & liver cirrhosis.
    - Common associated disease: Sjogren, Mikuliez.
  - ★ ***Local: (upper limb)***
    - VAN: facial nerve paralysis.
    - Bone: tempromandibular joint movement.
    - Discharge.
- **Trauma.**
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

General examination

As general.

Local examination

Inspection: 8 S +

- **Special character:** • **Pulsations** • Raising the lobule of the ear
- **Surrounding structures:**
  - • Masseter: it is superficial to masseter. • Facial nerve
- **Other Swellings:** • Submandibular &upper deep cervical lymph nodes
- **Oral Cavity** • Opening of the parotid duct opposite to the upper 2nd molar.
  - • Enlarged deep lobe will present with mass in the oropharynx.

Palpation: TT 4S CE 3S

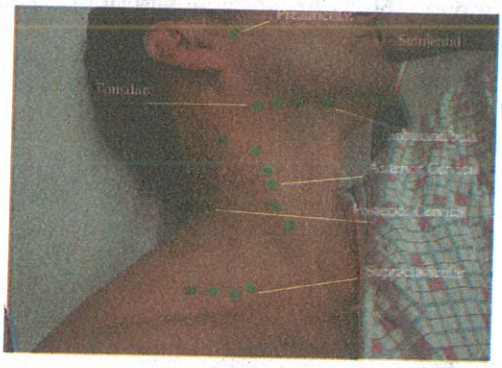
- **Special character:** Compressibility

LYMPHADENOPATHY SHEET

HISTORY TAKING

PERSONAL HISTORY

COMPLAINT Swelling: single or multiple & its site.



Cervical L.Ns

HISTORY OF PRESENT ILLNESS

- **Swelling.**
- **Pain.**
- **Disturbance of function:**
  - ★ ***General:***
    - Constitutional manifestations.
    - Symptoms of metastasis.
    - General etiology: T.B., leukemia, lymphoma, rash & syphilis. If localized ask about catchment area (septic or malignant lesion).
  - ★ ***Local:***

It will differ according to the site of enlarged lymph nodes e.g.

- **Cervical:** Dyspnea, dysphagia, hoarsness of voice, brachial plexus injury, Horner's syndrome.
- **Axillary** (upper limb): V, A, N, lymphedema.
- **Mediastinal:** mediastinal syndrome.
- **Inguinal** (Lower limb): V, A, N, Lymphedema.

- **Trauma:** if localized lymphadenopathy.
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

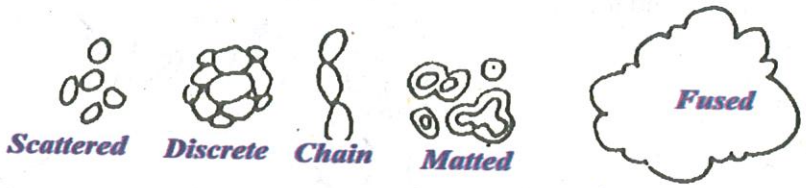
General examination

As general:

Don't forget abdominal examination especially for splenomegaly.

Local examination

As in swelling, describe the largest one & then enumerate the others.
Examine all groups of lymph nodes. (fig. 15)



Patterns of enlanrged lymph nodes

Fig. (15)

Auscultation: **Despine sign:** bronchial breathing at level of T4 in case of enlarged mediastinal lymph nodes.

Diagnosis

1. ***Anatomical:*** Is it a case of L.N. enlargement?
   To diagnose L.N. 1- Anatomical site of LN. 2- Multiplicity (very rarely solitary and it will be difficult to diagnose).

2. ***Pathological diagnosis***
   - **GENERALIZED**
     a. Variable: Late Lymphoma: not generalized from the start, mating & splenomegaly appears later.
     b. Of the same size:
        1. Rash: in case of 2nd stage syphilis &Glandular fever.
        2. Splenomegaly: in case of Glandular fever.

   - **LOCALIZED:** Examine the draining area
     a. Acute: Acute lymphadenitis.
     b. Chronic:
        1. Rapidly growing: Metastatis, Early lymphoma.
        2. Stationary: chronic nonspecific.
        3. Matting: metastasis, early lymphoma, T.B.

3. ***Functional diagnosis and complications.***
   - If the possible diagnosis is lymphoma what is the stage?

REMEMBER

THE LYMPH NODES GROUPS OF THE BODY:

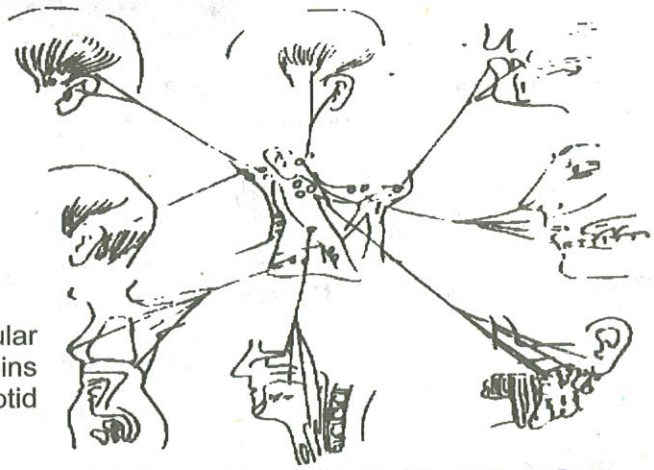
A. Cervical lymph nodes:

1- *Circular chain:*

a- **Outer chain(around the mandible)** (fig. 16):
- ***Infrahyoid nodes:*** pretracheal& prelaryngeal (Delphic).
- ***Submental:*** drains lower lip, floor of mouth & apex of tongue.
- ***Submandibular:*** drains the lateral side of the nose, cheek, upper lip, lateral lower lips.
- ***Parotid.***
- ***Pre-auricular:*** drains the outer surface of the ear & adjacent temporal region.
- ***Post-auricular:*** (mastoid) drains posterior part of the temproparietal region, back of ear, external acoustic meatus.
- ***Occipital:*** drains the occipital part of the scalp.

b- **Inner (Waldayer) ring:**
- Retropharyngeal.
- Adenoid.
- Lymphoid tissue around the eustachian tube.
- Faucial tonsils.
- Lingual tonsils

c- **Vertical chain:**
Superficial group: external jugular chain + anterior jugular chains, drains the lower part of the ear & parotid region.



Draining areas of cervical lymph nodes
Fig. (16)

Deep group: they are divided by the level of C4 (upper border of thyroid cartilage or bifurcation of the carotid) into 2 groups: upper & lower deep cervical, each of them is divided by internal jugular vein into anterior & posterior.

1- Upper posterior group.
2- Upper anterior group: Jugulodigastric (tonsillar) lymph node → drains tongue, thyroid, trachea, nasopharynx, tonsil, nasal cavity, esophagus & palate.
3- Lower posterior group: Supraclavicular L.N. → drains scalp, neck, superficial pectoral region, axillary and upper deep group
4- Lower anterior: Suprasternal L.N.

B. Axillary lymph nodes: Includes:

- Anterior (pectoral) group: drains breast & anterior abdominal wall above the umbilicus.
- Posterior (subscapular) group → examined from posterior, drains the back.
- Lateral (humeral) group: drains upper limb.

- Apical group: drains shoulder, upper limb and part of the breast.
- Medial (central) group: receives from other lymph nodes

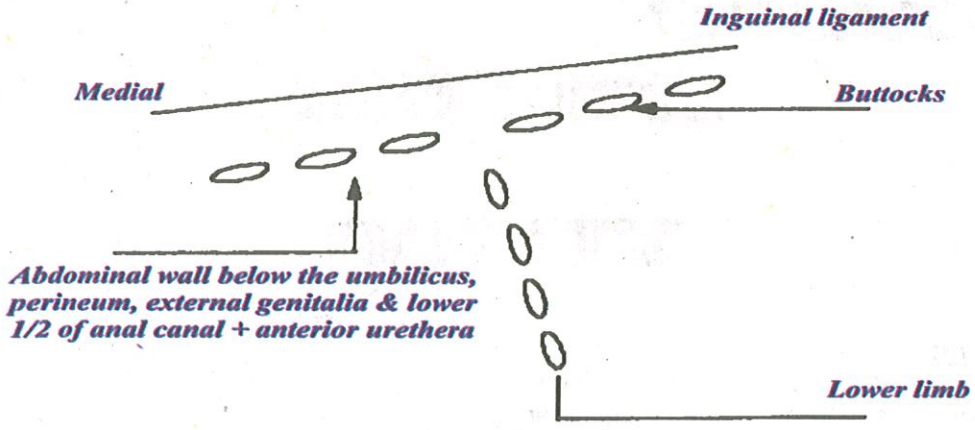
Place the right hand of the patient on your left hand then examine his right axilla & vice versa.

C. Epitrochlear lymph nodes.

D. Inguinal lymph nodes:

1- **Superficial group:** (fig. 17) below the inguinal ligament, along the long saphenous vein. It contains: oblique &vertical groups.

2- **Deep group:** under the femoral vessels, includes the node of Cloquet. It drains the superficial group, glans penis, clitoris, and send to external iliac lymph nodes.


Inguinal ligament
Medial
Buttocks
Abdominal wall below the umbilicus, perineum, external genitalia & lower 1/2 of anal canal + anterior urethera
Lower limb

Draining inguinal lymph nodes

Fig. (17)

E. Popletial group: below the deep fascia gives efferent to inguinal L.N. (deep)

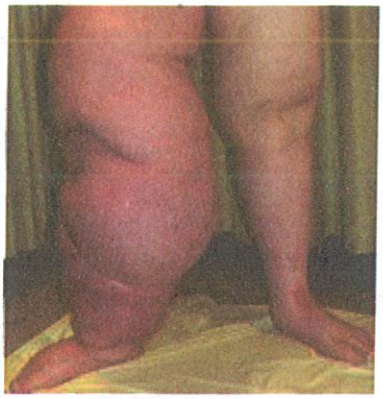
F. Paraaortic & Iliac groups.

DD OF MULTIPLE SWELLINGS (not in the anatomical sites of the lymph nodes)

1- Multiple neurofibromatosis.
2- Multiple lipomata.
3- Multiple pyemic abscesses.
4- Multiple secondaries.
5- Multiple exostosis.
6- Multiple myelomatosis

SWOLLEN LIMB SHEET

HISTORY TAKING



Rt lymphedema
(Look to the preserved ankle creases)

PERSONAL HISTORY

COMPLAINT Swollen limb (right or left).

HISTORY OF PRESENT ILLNESS

- **Swelling.**
- **Pain.**
- **Disturbance of function:**
  - ★ ***General:***
    - Constitutional manifestations.
    - Symptoms of metastasis.
    - General etiology: cardiac, renal or hepatic disease.
    - Common associated disease: other swollen parts, other filarial manifestations.
  - ★ ***Local:***
    - VAN: varicose veins.
    - Local manifestations: of complications e.g. ulcers & recurrent streptococcal infections.
    - Discharge: lymphorrhea.
- **Trauma.**
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

General examination

As general

Local examination

✪ **Inspection:**

Consider the whole limb as a swelling then comment:

- **Size:** by tape → measure the diameter
- **Shape:** diffuse.
- **Skin:** ulcers or pigmentation.
- **Special characters:** ankle crease (preserved or not)
- **Surrounding structures:** varicose veins or not
- **Other swellings:** inguinal lymph nodes

✪ **Palpation:** As swelling

- Consistency:
  - i. Pitting edema.
  - ii. Non pitting edema.
  - iii. Brawny edema (hard but still pitting).

REMEMBER

➢ **Causes of swollen limb:**

1. ***As a part of generalized edema:*** (bilateral)
   a. Cardiac.
   b. Renal.
   c. Hepatic

2. ***As localized edema:*** (unilateral)
   a. Congenital: congenital A-V fistula
   b. Traumatic: hematoma
   c. Inflammatory: cellulites.
   d. Neoplastic: sarcoma.

   e. Miscellaneous:
      1. Venous → Postphlebitic syndrome (painful).
      2. Lymphatic (lymphedema): painless except if complicated(streptococcal infection):
         a. Primary.
         b. Secondary:
            i. Traumatic.
            ii. Inflammatory
            iii. Neoplastic.
            iv. Post-radiotherapy.

INGUINOSCROTAL SWELLING SHEET

HISTORY TAKING

PERSONAL HISTORY

COMPLAINT e.g. swelling.

HISTORY OF PRESENT ILLNESS (in case of swellings other than hernia)

➢ **Swelling.**
➢ **Pain.**

➢ **Disturbance of function:**

★ ***General:***
- Constitutional manifestations.
- Symptoms of metastasis: e.g. in case of testicular tumors.
- General manifestations: e.g. feminization in some testicular tumors.
- General etiology: e.g. T.B., syphilis, bilharziasis & U.T. infection.

★ ***Local:***
- Discharge.

➢ **Trauma:** Hematocele.
➢ **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

IN CASE OF HERNIA

HISTORY OF PRESENT ILLNESS

- **Swelling:** Reducibility, relation to posture & relation to straining.
- **Pain:** Early, later painless unless complicated.

- **Disturbance of function:**
  - ★ ***General:***
    - Constitutional manifestations.
    - General manifestations: strangulation or obstruction.

    - **General etiology:**
      1. Straining (cough, constipation, stricture urethra, lifting heavy weight).
      2. Abdominal mass (increased intra abdominal pressure).
    - Common associated disease: mesodermal defects e.g. flat foot, piles, V.V.

  - ★ ***Local:***
    - Local manifestations: influencing patient ability to work.

- **Trauma:** Surgical trauma e.g. in appendicectomy with injury to ilioinguinal nerve.
- **Investigations & treatment.**

General examination

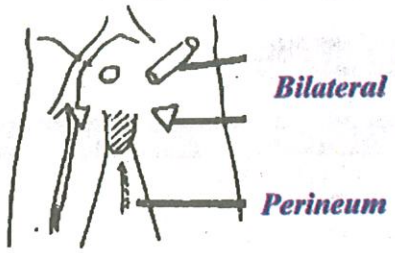
See general.

Local examination

Remember golden rules (see breast).

☆ **Local examination includes:** **Fig. (18)**

External genitalia, inguinal region (bilateral), femoral triangles (bilateral) & perineum.



Local examination includes

✪ **Inspection:**

SSPP

1. **Swelling:** as general.
   Special character: impulse on cough.

2. **Scrotum:**
   2 full compartments with median raphi, no dilated veins, no scar, no sinuses.

3. **Penis:**
   No hypospaduis, no epispadius, no meatal stenosis, no ulcers

4. **Perineum:** (part of local examination) e.g. for scar.

✪ **Palpation:**

SSSS

1. **Swelling:**

   TT 4S CE 3S

   - ***Site:*** hold the neck of the scrotum:
     - Swellings above your fingers → inguinal swelling.
     - Swellings below your fingers → scrotal swelling.
     - Swellings in between your fingers → inguinoscrotal swelling.

- ***Consistency:*** soft if intestine, doughy if omentum.
- ***Special character:*** reducibility & expansile impulse on cough.
- ***Surrounding structures in hernia:***
  - **Pubic tubercle:**
    - Above and medial → inguinal hernia.
    - Below and lateral → femoral hernia.

How to detect the pubic tubercle:

1. *Adduct the thigh against resistance and follow the round tendon of adductor longus muscle till its insertion.*
2. *It lies just lateral to midline and midway between lower abdominal crease and inguinal crease.*

- **Inguinal ligament.**
- **Spermatic cord:**
  - Felt on hernia → direct hernia.
  - Not felt → indirect hernia.

- **Testis:** if hernia reach bottom of scrotum:
  - Congenital: We can't separate the testis from swelling
  - Acquired: We can

2. **Scrotum:**
   - **Testis:** 1x2x4 cm, firm in consistency, with preserved testicular sensations
   - **Tunica:**
     a. Tense hydrocele: test by ***bipolar fluctuation test*** (fig. 19): Hold upper pole of swelling between thumb & fingers of one hand to make the swellings tense & steady then apply pressure at lower pole with thumb & fingers of the other hand and determine if the observing fingers will be separated by the displaced fluid.

     b. Lax hydrocele: ***pinching test***: start as lateral as possible, fix the testis with the other hand pinch the skin of the scrotum over the testis between the thumb & index, if another soft tissue layer is felt deep to skin rolling between thumb & index = +ve small or early hydrocele.

Holding the neck of the scrotum *Bipolar fluctuation* *External ring test*

Fig. (19)

3. **Spermatic cord:**
   The thumb is applied anteriorly & one finger or more posteriorly at the neck of scrotum on both sides.
   Normally: Thickness of little finger can be flattened, vas is not beaded, no thrill on cough

4. **Special tests:**
   a. **External ring test = Invagination test:** Let the patient lies down and reduce the hernia. Introduce the little finger into the inguinal canal through the external ring and ask the patient to cough. If impulse is felt at tip of finger = O.I. H If impulse is felt at side of finger = D.I.H also comment on:

- Size of external ring.
- Condition of the posterior wall of the canal.

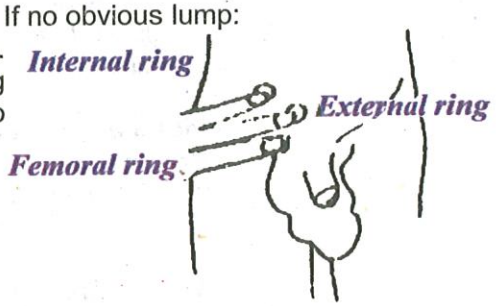
The test is painful & not accurate.

b. Internal ring test: let the patient lies down, reduce the hernia, occlude the internal ring by the thumb of the opposite hand. Ask the patient to stand up & cough. If hernia descends = direct hernia (-ve test).

If hernia descends only after removal of the thumb = oblique hernia.

c. Three fingers test (Zieman's technique): If no obvious lump:

The index over the internal ring. Middle over the external ring & the ring over femoral canal. Ask the patient to cough during standing. (fig. 20)



Zieman's technique

✪ **Percussion:**

- Enterocele: resonant.
- Omentocele: dull.
- It may help in differentiation between funiculitis & strangulated hernia.

✪ **Auscultation:** (rarely used): intestinal sounds may be audible = enterocele

✪ **Transillumination:**

Place a pencil torch laterally over the stretched scrotum & observe a red glow in darkness or through a rolled paper.

Diagnosis

1. ***Anatomical:*** Side & inguinal, scrotal, inguinoscrotal, testicular or epididymal swelling.
2. ***Pathological:*** Hernia or varicocele.
3. ***Etiological.***
4. ***Functional:*** Presence of complications & clinical fitness for surgery.

REMEMBER

1. T.B sinus is commonly located posteriorly except in complete polar inversion of the testis in which the epididymis is located anteriorly.
2. Normal test is oval, 2 × 1 × ½ inches in normal adult.
3. Phimosis (narrowing of the opening of the prepuce), paraphimosis (incomplete circumcision, fibrous band around glans penis).
4. Bowing test: the patient is instructed to bow, if tension within the veins become less →1ry varicocele.
5. If the scrotum is empty this may be:
   - a- Retractile testis.
   - b- Undescended testis.
   - c- Ectopic testes.
   - d- Surgical removal.
   - e- Congenital absence.
6. Pass the finger laterally along the inguinal fold the 1st bony prominence felt is ASIS.
7. The internal ring is ½ inch above the mid-inguinal point.
8. A paraumbilical or epigastric hernia should be considered as an abdominal swelling (i.e. complete abdominal examination + examination of the swelling).

VARICOSE VEINS SHEET

HISTORY TAKING

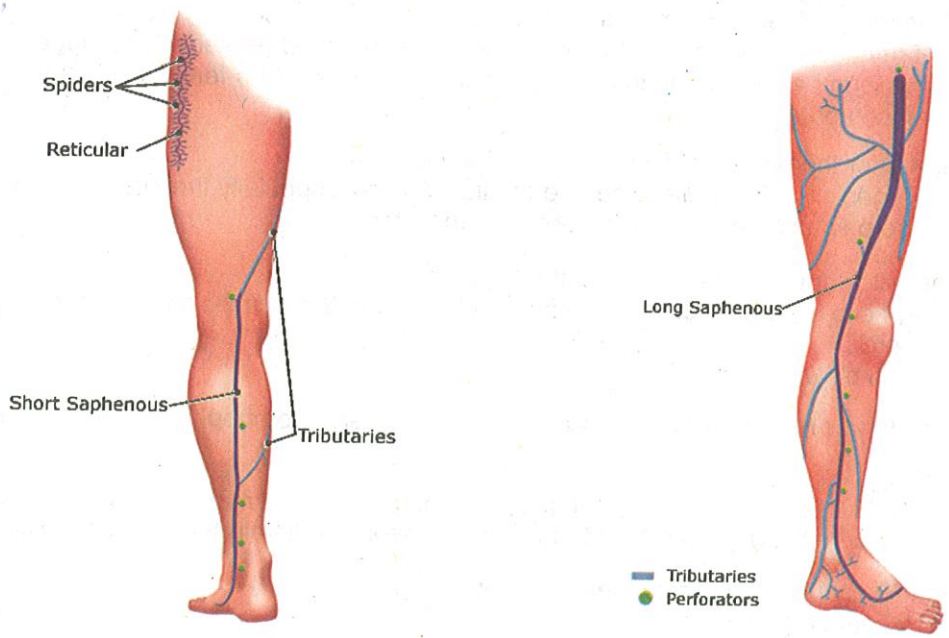
PERSONAL HISTORY

COMPLAINT e.g. Pain, complications, bluish streaks under the skin.

HISTORY OF PRESENT ILLNESS

- **Swelling.**
  - a. Varicose veins.
  - b. Groin swelling: Saphena varix, hernia, inguinal L.N., swelling of femoral triangle compressing the femoral vein, pulsating swelling in A.V. fistula.
- **Pain.**
- **Disturbance of function:**
  - ★ ***General:***
    - General etiology:
      1. D.V.T.: Acute leg swelling, pain, fever and inability to walk. Usually after operation, fever or prolonged recumbency (symptoms are + ve in only 25% of cases of D.V.T.).
      2. Prolonged recumbency
      3. Fevers (especially typhoid).
      4. Abdominal and pelvic masses.
      5. Use of contraceptive pills.
    - Common associated disease: other mesodermal defects e.g. hernia, piles, flat foot.
  - ★ ***Local:***
    - Local manifestations: edema, skin pigmentations, thrombophlebitis, ulcer & hemorrhage.
- **Trauma:** Acquired A-V fistula.
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual



Anatomy of superficial venous system in L.L.

General examination

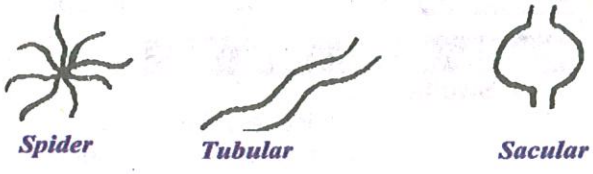
As general.

Local examination

✪ **Golden rules:** see breast.

✪ **Exposure:**

From nipple line to toes, patient is examined during standing and lying down.



Patterns of varicose veins

Fig (21)

✪ **Inspection:**

- ➢ Are these v.v.: v.v. are dilated & tortuous.
- ➢ **Pattern** (fig. 21) (shape).

***N.B:* Ankle flare = fine venules passing from medial malleolus to the heel.**

- ➢ **Extent:**
  - o Unilateral or bilateral.
  - o Cross the groin or not.
  - o Short, long saphenous, irregular.
- ➢ **Cough** → Saphena varix will show expansile impulse on cough (4 cm below & lateral to pubic tubercle)
- ➢ **Complication:** edema, skin (ulceration, pigmentation), thrombophlebitis (red streak).
- ➢ **Etiology:**
  1. A-V fistula: trauma, scar, pulsating v.v. local gigantism.
  2. Mass in the femoral triangle blocking the femoral vein.
- ➢ **D.D.:** Look for other causes of lower limb pain e.g. flat foot, ischemia.

✪ **Palpation:**

Stand on the same side to be examined.

1. Palpate along the course of the veins:
   - Sensation of tensile tortuous structures.
   - In fatty patient v.v. may not be seen and only palpated (especially its upper end.).
   - If the long saphenous vein is felt up to the site of sapheno-femoral junction = incompetent S.F. valve.
2. Palpate for the fascial defects against blow outs by:
   Fegan's method: Mark the site of dilated veins especially the sites of blow outs while the palpable defect – incompetent perforator.
3. Expansile impulse on cough and thrill against:
   a. Sapheno-femoral junction = incompetent S.F. valve. It is 4 cm below and lateral to pubic tubercle
   b. Each blow out.
4. **Complications:** thrombosis (nodule), edema, ulcer, thrombophlebitis (tenderness).
5. **Etiology**:
   - o In A.V. fistula – V.V. are pulsatile with machinery murmur.
   - o Measure the limb from A.S.I.S. to medial malleolus bilaterally to detect local gigantism.
6. **D.D.:** Examine for other causes of lower limb pain e.g.
   - o Ischemia (pulse).
   - o Osteoarthritis (joint & motor power).
   - o Peripheral neuritis (sensations).
   - o Sciatica.

✪ Special tests:

1. **To detect retrograde blood flow:** (incompetent valves in superficial veins) → ***Percussion test*** *or* ***Schwartz test:*** VV are percussed by the index of one hand & palpated distally (at least 12 cm) by fingers of other hand, only if all valves between the 2 hands are incompetent, waves are transmitted distally.

2. **To localize blow outs:**

   a. ***Morrissey's test:*** elevate the leg of the patient 30 to empty the VV. Ask the patient to cough &watch for reflux venous waves in saphenous opening = incompetent sapheno-femoral junction. (fig. 22)

Morriesey's test
Fig. (22)

   b. ***Trendlenburg's test:*** patient lies, his leg is raised and massaged to empty V.V. Thumb is applied (or bandage is applied) on sapheno-femoral Junction at saphenous opening (1 1/2 inches below and lateral to pubic tubercle) The patient stands:

Normally: Long saphenous vein fills slowly from below.
Then release the thumb (or the bandage).
If Trendlenburg's valve is incompetent, the blood refluxes rapidly to fill great saphenous vein from above (in this case Trendlenburg's operation is must).

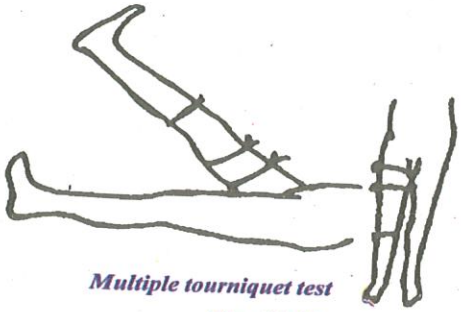
If before releasing the thumb, rapid filling from below lower blow outs are expected and you have to do the next test to localize these incompetent perforators (no. 4 & 5). (fig. 23)

Trendlenburg's test

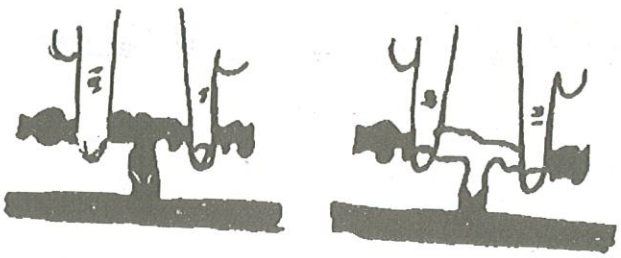
Fig. (23)

N.B: ***Small saphenous vein can be tested by pressing the thumb on sapheno-popliteal junction at mid point of popliteal fossa, during this test. Great saphenous vein must be occluded by bandage above the knee.***

   c. **Multiple tourniquet test:** (fig. 24) Patient lies down, his leg is raised to empty v.v. 3 tourniquets are applied: one below the saphenous opening, one at the lower 1/3 of the thigh and the 3rd hand breadth below the knee (This will divide the long saphenous into several segments). After standing rapid, filling of a segment denotes incompetence (blow out) of valves in related communicating veins. Exact localization can be made if test is repealed using more tourniquets in the segment. Mark the site of perforators.



Multiple tourniquet test
Fig. (24)

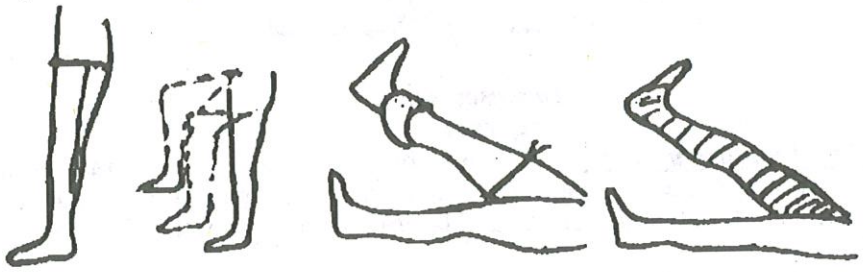


Manual localization test
Fig. (25)

d. Manual localization test (Finger compression test): (fig. 25) Patient stands, the two index fingers are pressed at a point on great saphenous vein and then moved in opposite directions to empty a segment, if this segment remains empty, it has no blow outs. If it fills, blow exists.
All the vein is tested segment by segment from above downwards.

3. Tests to differentiate between occluded &patent deep veins:

a. Perthes' test: (fig. 26) subjective only, not done. Patient lies down, his leg is raised, and elastic bandage is applied from toes to groin to occlude superficial veins. Then the patient walks in steps for 5 min, if pain occurs, deep veins are occluded (2ry VV with uncanalized deep veins), if no pain occurs = deep veins are patent = 1ry VV or 2ry VV with uncanalized deep veins = superficial system could be attacked.



Perthe's & modified Perthe's tests

Fig. (26)

b. Modified Perthe's' test: subjective & objective, usually done. With patient standing, tourniquet is applied at upper thigh to occlude superficial veins. Then patient walks in situ for 5 min. VV are observed:

- If they shrink & pain doesn't occur →deep veins are patent, if they engorge & pain occurs → deep veins are occluded
- This test is preferred as it's easy & doesn't depend on patient's word

Diagnosis

1. Anatomical: is it varicose veins or just prominent veins.
Great or small saphenous vein or both.

2. Pathological:

- Primary or secondary.
- Site of incompetent valves.
- What is their course?
- Condition of deep veins.

3. Presence of complications & clinical fitness for surgery.

ISCHEMIA & GANGRENE SHEET

HISTORY TAKING

PERSONAL HISTORY

COMPLAINT e.g. pain, coldness, weakness.

HISTORY OF PRESENT ILLNESS

- **Swelling:** e.g. aneurysm & sarcoma compressing artery.
- **Pain.**
- **Disturbance of function:**
  - ★ ***General:***
    - General etiology: cardiac disease → emboli.
    - Common associated disease: other ischemic manifestations:
      a. Heart → angina.
      b. CNS → stroke, hemiplegia & TIA.
  - ★ ***Local:***
    - Local manifestations (of ischemia): see table.
- **Trauma.**
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

General examination

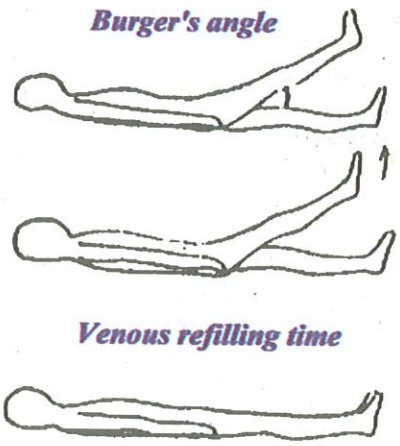
As general.

Local examination

Remember golden rules (see breast).

✪ **Inspection:** For:

- **Manifestations of ischemia** (see table). (fig. 27)
- **Etiology:** swelling, scar (along the course of artery).
- **D.D.:** flat foot & V.V.



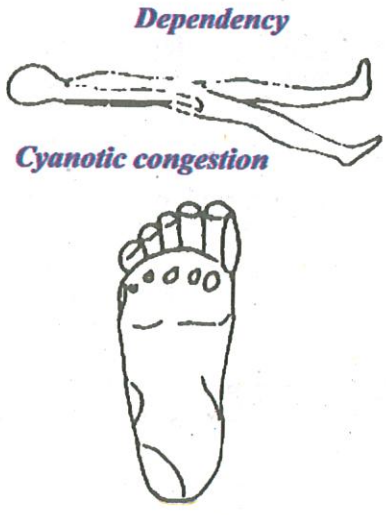


Fig. (27)

- **Palpation:** for:
  - **Manifestations of ischemia:** (see table).
  - **Etiology:** swelling (palpate along the course of the artery)
  - **D.D.:** Sciatica, Osteoarthritis, peripheral neuropathy

- **Auscultation:**
  - Over margin of major vessels (bruit = stenosis)
  - Press the artery by the bill of stethoscope & gradually release the pressure, a bruit is heard normally. If no audible bruit = obstruction of vessel
  - Along the course of the affected artery: systolic bruit beyond the site of obstruction.
  - A-V fistula: continuous machinery murmur.

6P CTF 3	Acute	Chronic	History	Inspection	Palpation
Pain	Shooting	Claudication, rest pain	√	----	----
Paralysis (motor)	√	--- (wasting +weakness)	√	√	Motor power
Parasthesia (sensory)	Loss of sensation	√	√	----	√
Pulseless	√	√	----	----	√
Possible gangrene	(moist)	(Dry)	√	(comment on amputation)	(by gloves)
Pallor (color changes)	√	Color changes: no, postural, fixed	√	√	----
Coldness	√	√	√	----	Both sides & level of coldness
Trophic changes	----	√	√	√	Ulcer
Venous filling time	----	√	---	√	----
Superficial thrombophlebitis	-----	---- (burger's disease)	√	√	√
Impotence	---	Le Riche syndrome	√	----	----
Capillary circulation test	Lost in gangrene	√	----	√	----

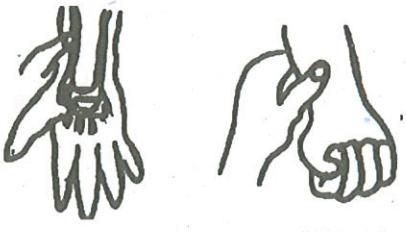
- **Special tests:** (fig. 28)

1. **Adson's deep breathing test:** it depends upon the fact that, the scalenous anterior is an accessory muscle of respiration. Feel the radial pulse of seated patient, and then ask the patient to turn his head as far as possible towards the side (or the opposite side classic-) of the symptoms, with elevation of the chin & deepen his shoulders. When the patient is asked to take deep inspiration & holds it, if the pulse diminishes → the sign is +ve, as in cervical rib &scalene syndrome

Adson's test

2. **Allen's test:**

- Ask the patient to clench his fist while occluding radial artery → pallor
- Unclenched hand turns pink normally
- Pallor = occluded ulnar artery repeat with radial artery



Allen's tes

Diagnosis

1. ***Anatomical:*** What limb, right or left?
2. ***Pathological:*** Acute or chronic.
3. ***Etiological:*** Atherosclerosis, Buerger's, embolism.

4. ***Functional & presence of complications:***

i. Degree of ischemia:

- ***From the history:*** Claudication distance, period of rest needed to relief pain, presence of rest pain.
- ***From local examination:*** Degree of color changes, Buerger's angle, fixed color changes & venous refilling time.

ii. Level of arterial obstruction:

- From the history: Site of claudication.
- From local examination: level of coldness, level of absent pulse.

iii. Presence of ulcers & gangrene.

REMEMBER

THE DISAPPEARING PULSE: When the pulse distal to obstruction is felt due to good collaterals, ask the pt to exercise the limb to the point of claudication. The previously palpable pulse will disappear.

D.D. OF CHRONIC PAIN IN LL:

- Ischemia
- V.V.
- Osteoarthritis: pain increase early in the morning & decrease with gradual walking, mainly in the knees
- Peripheral neuritis: burning &tingling sensation, bilaterally &distally located with DM
- Flat foot: tension pain in the medial side of the foot (spring ligament) increases with standing and decreases with rest.

♦ ***Sciatica***: Shooting pain to the back of the thigh inc. with cough or straining & decrease with prolonged recumbency.

PULSES OF HEAD & NECK

1. **Common & external carotid:** standing behind the patient & flexing his neck towards the side to be examined. Press fingers backward at the anterior border of sternomastoid against transverse process of cervical vertebrae. At upper border of thyroid cartilage (C6 = carotid tubercle) common carotid ends & external carotid starts.

2. **Superficial temporal:** Felt in front of ear tragus, against zygomatic arch.

3. **Facial:** Felt against the lower border of the mandible just in front of anterior border of masseter.

4. **Supraorbital & supratrochlear:** palpated against the frontal bone just above the medial part of the eye brows. Their pulsations give an idea about the integrity of the internal carotid artery

PULSES IN UPPER LIMB

1. **Radial:** Felt against lower radius, between the radial styloid &tendon of flexor carpi radialis

Radial pulse

2. **Ulnar:** felt lateral to tendon & flexor carpiulnaris against lower ulna

3. **Brachial:** (fig. 30)
   a. Lower end is felt in anti-cubital fossa opposite the humerus & support the back of extended elbow by one hand.
   b. Upper part is felt against the medial side of humerus. Standing by the patient's side. Put your 2 thumbs on the lateral side of arm while all the fingers feel pulse on medial side

Ulnar pulse
Fig. (29)

4. **Axillary:**
   - Surface anatomy: upper ½ of the line drawn from the middle of the clavicle to point midway between the humeral condyles
   - Felt against medial side of upper humerus as brachial but fingers are pushed high in axilla with thumb on the acromion

5. **Subclavian:** (its 1/3 part) from behind felt in the supraclavicular fossa within 1 inch above the middle 1/3 of clavicle. Press downward &posterior against the 1st rib.

Brachial artery
Fig. (30)

PULSES IN LOWER LIMB

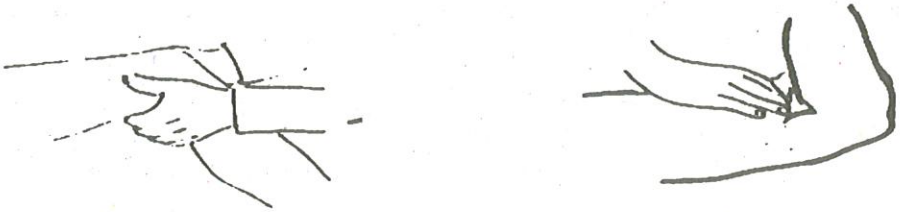
1. **Dorsalis pedis:** fig. 31 (n: absent in 10%) felt along line from midpoint between malleoli to base of 1st intermetatarsal space against the navicular bone, just lateral to tendon of extensor hallucis longus

Dorsalis pedis pulse

Posterior tibial pulse

Fig. (31)

2. **Posterior tibial:** (n: absent in 5%) felt midway between medial malleolus &tendoachilis
3. **Anterior tibial:** Felt against tibia just above the ankle midway between malleoli
4. **Popliteal:** (fig. 32) by 2 methods:
   a. Flex the patient's knee with 2 thumbs on tibial tuberosity. Put all fingers in the middle of popliteal fossa to feel pulse of lower part of popliteal artery against popliteus or popliteal surface of upper tibia. Sometimes it's better to be felt if knee's extended.



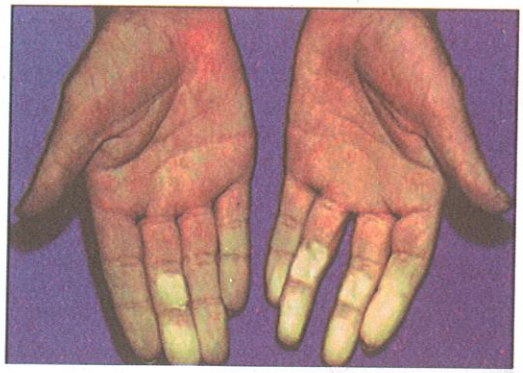
Popliteal pulse
Fig. (32)

   b. If impalpable, turn the patient on the face & flex the knee by one hand & feel the pulse against the popliteal surface of lower femur.

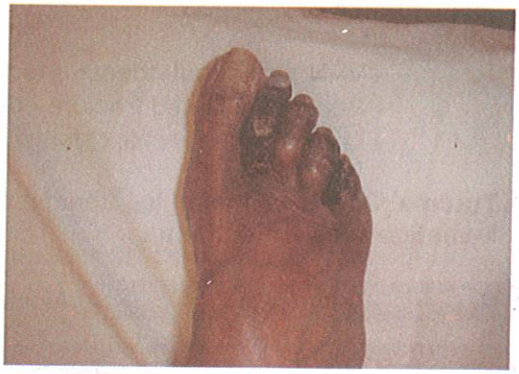
5. **Common femoral:** (fig. 33) felt at midinguinal point below the inguinal ligament against pelvic brim. If hip is flexed, abducted &externally rotated it may be felt better against the head of femur

Femoral pulse
Fig. (31)

6. **Superficial femoral:** may be felt against the shaft of femur with muscle along upper 2/3 of line from midinguinal point to adductor tubercle with thigh flexed & abducted



Raynaud's disease (stage of pallor)



Chronic ischemia with peripheral dry gangrene

NERVE SHEET

HISTORY TAKING

PERSONAL HISTORY As usual

COMPLAINT Deformity (motor) or sensory loss.

HISTORY OF PRESENT ILLNESS

- **Swelling:** Neuroma (result) or sarcoma (cause).
- **Pain** (causalgia).
- **Disturbance of function:**
  - ★ ***Local:***
    - VAN: ask about edema & ischemia for possible associated injury of artery or vein.
    - Bone: associated fracture or joint injury.
    - Local manifestations: deformity, wasting, paralysis & trophic changes.

- **Trauma:** Causative agent, treatment (site & time of repair).
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

General examination

As general

Local examination

✪ **Inspection:**

- ***Etiology:***
  Swelling or scar along the course of the nerve, cubitus valgus
- ***Results:***
  Deformity, wasting, trophic changes
- ***Association:***
  VAB:
  - **V**: Edema
  - **A**: Manifestations of distal ischemia
  - **B**: If related to joint, ask the patient to move the joint passively

✪ **Palpation:**

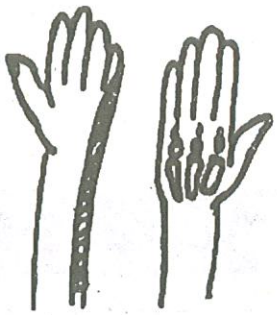
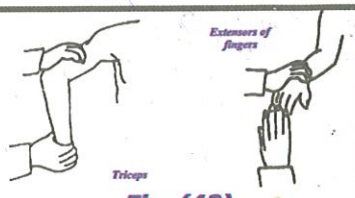
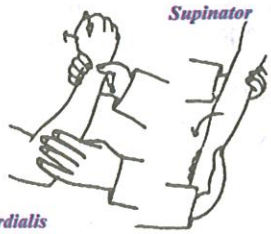
- ***Etiology:***
  Swellings
- ***Results:***
  Special test for each muscle & sensations
  Examine muscles supplied by the nerve systematically.
  a. If no active movement: do passive movement (to exclude joint disease).
  b. If there is movement: examine the muscle power & compare with the other side.
- ***Association:***
  VAB: PULSE

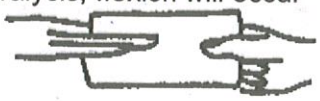
✪ **Percussion:** **Tinel Test:**
Tap the nerve distal to the lesion. Tingling sensation (distally) = growing nerve fibres distally.
It is done to follow the regeneration of the nerve.

Diagnosis

1. ***Anatomical:*** Right or left median, ulnar…nerve injury. At or above wrist, elbow…
2. ***Pathological:***
   - Partial or complete: if part of the muscles supplied by the injured nerve isn't paralyzed or part of the skin supplied by it has intact sensations = Partial injury
   - Neuroapraxia, Axonotmesis, Neurotmesis
3. ***Etiological:*** Traumatic
4. ***Complications:*** Muscle wasting, trophic changes, VAB

Ulnar nerve	Median nerve	Radial nerve
➢ Inspection		
1. Etiology:		
Scar, swelling, cubitus valgus (increased carrying angle → delayed ulnar neuritis)	Same, but no cubitus valgus	
2. Results:		
• ***Deformity:***		
At wrist: partial claw hand *Partial claw hand* *Fig. (34)*	**At wrist: Ape Hand** (loss of thenar eminence, thumb adducted, at the same level of the palm *Oschner clasping test* *Fig. (35)* *Pistol hand* *Fig. (37)*	**Radial:** Wrist drop & finger drop *Wrist drop* *Fig. (36)*
At or above elbow: Ulnar paradox: flexion of little &ring fingers will be less apparent due to paralysis of medial ½ of F.D.P.	**At or above the elbow:** Benediction attitude i.e. index extended with serial flexion of the rest of fingers. Pointed pointing finger, Pistol hand, Oschner clasping test. *Benediction attitude* *Fig. (38)*	**Posterior Interosseus:** Finger drop

Ulnar nerve	Median nerve	Radial nerve
• ***Muscle wasting:***		
At wrist: Flat hypothenar eminence, straight ulnar border, wasted interossii (esp. the 1st)  ***Fig. (39)*** **At elbow:** medial border of forearm	**At wrist:** flat thenar eminence ***Fig. (40)*** **At or above the elbow:** as above+ wasting of muscles of front of forearm	**At spiral groove:** lateral & posterior aspect of forearm ***Fig. (41)*** **At axilla:** back of arm
• ***Trophic changes:***		
Along medial 1/3 of hand & medial 1 ½ fingers.	Pulp fat → tapring of fingers	On dorsum of 1st web
3. Association		 ***Fig. (42)***
VAB	--------	
➢ Palpation:		
1. Etiology	--------	
2. Results		
• ***Active movement & special tests***		
FDP of little &ring fingers: hold the middle phalanx &ask the patient to flex the terminal phalanx ***Fig. (43)*** **FCU:** ask the pt. To flex the wrist with ulnar deviation against resistance &palpate ms. Tendon at the wrist **Abd. digiti minimi:** ask the pt to abd. Little finger	**Pronator Teres:** feel the ms during pronation **FDS:** ask the pt. To flex the examined finger while the rest are hyperextended. This test is not valid for index or little fingers ***Fig. (44)*** **FDP:** for middle & index fingers: as ulnar nerve	**Triceps:** ask the pt. To extend his elbow while the arm abducted to neutralize the effect of gravity **Brachioradialis:** flex the elbow against resistance then see &feel the ms. (forearm is semipronated)  ***Fig. (45)*** **Supinator:** ask the pt. To supinate the extended elbow (to neutralize the effect of biceps)

Ulnar nerve	Median nerve	Radial nerve
Add. pollices: ask the pt to grasp a paper bet. Thumb &side of the hand, while u try to withdraw it the affected thumb flex **(Froment test)** ***Froment's test Add. polices Fig. (49)*** If the pt. can't hold paper, then median + ulnar injury **Interossii:** ask the pt. To grasp a card while u try to withdraw it **(card test)**,with paralysis, flexion will occur  ***Fig. (51)***	**Flex. Pollices L.:** fix the proximal phalanx & ask the pt to flex the terminal one ***Fig. (50)*** **Abd. Pollices brevis:** pt place his hand on a flat surface& ask him to touch a finger or pen placed above it, keeping the thumb straight **(Pen touching test)** ***Fig. (49)*** **Opposition** of the thumb against other fingers	**Extensors** of the wrist & fingers
• ***Sensations***		
• ***Association:*** VAB		

Sciatic nerve	Lat. Popliteal nerve	Med. Popliteal nerve
➢ Deformity		
Foot drop (some degree of flexion of knee by sartorius & gracilis	***Talipes equino varus*** (drop foot): high steppage gait	***Talipes calceneovalgus***
➢ Wasting		
Back of thigh &all ms. Below knee	Ant. &lat. Compartment	Calf & sole
➢ Movement		
Complete paralysis below knee	Weak or lost dorsiflexion of foot &toes &eversion of foot	
➢ Sensations		
Complete sensory loss below the knee except area supplied by Saphenous nerve (inner side of leg, inner border of foot, big toe)	Over dorsum of foot, part of front &outer sides of leg	Over the sole

IMPORTANT NOTES

1. Active movement is lost in:

- Joint or bone disease: no passive movement but no sensory loss
- Tendon injury: there's passive movement and no sensory loss
- Nerve injury: there's passive movement & sensory loss

2. How to differentiate between Ulnar, Radial &Median n. injury by thumb examination?

- Radial → extension
- Ulnar → adduction
- Median →opposition

3. Movement of the thumb:

- Adduction & abduction.
- Flexion & extension
- Opposition &circumduction

4. DD of Claw Hand:

a. Ulnar n. injury (Partial).
b. Ulnar &Median n. injury, Klumpke's paralysis, lower brachial n. injury (complete).
c. Post burn contracted scar (PBCS)
d. Dupytren's contracture (partial)
e. Volkmann's ischemic contracture (total)
f. Neglected suppurative Tenosynovitis
g. Some diseases as: polio, syringomyelia, advanced rheumatoid arthritis.

5. Claw hand is the reverse of writing position (claw hand is due to loss of function of lumbricals)

ABDOMINAL SHEET

HISTORY TAKING

PERSONAL HISTORY As usual + previous residence & occupation.

COMPLAINT e.g. swelling, pain, jaundice (yellowish discoloration of skin & sclera).

HISTORY OF PRESENT ILLNESS

- **Swelling.**
- **Pain** (relation to food).

- **Disturbance of function:**
  - ★ ***General:***
    - Constitutional manifestations.
    - Symptoms of metastasis.
    - General etiology:
      - **a.** Causes of Hepatosplenomegaly: e.g. Bilharziasis, hemolytic anemia & haemolytic crisis, leukaemia (bleeding tendency, bone aches), Hodgkin (pruritis, bone aches & L.N. enlargement), Malaria, typhoid, infective endocarditis, history of hepatitis, blood transfusion, injections.
      - **b.** TB toxaemia.
      - **c.** Chest symptoms in upper abdominal pain & to differentiate haemoptysis from haematemesis.
      - **d.** Mass (=1ry with 2ry in the liver).

  - ★ ***Local:***
    1. **Gastric & Esophageal symptoms:**
       - Dysphagia
       - Vomiting.
       - Hematemesis (exclude bleeding gums, hemoptysis, special drugs or food), **Ask about**:
         - Amount of bleeding (if bright red = severe hematemesis).
         - Condition of patient after attack (loss of consciousness).
         - No of motions after attack (more motions indicate more blood).
         - Management of the attack (amount of blood replacement, sungstaken tube = severe attack).
       - Melena (exclude iron intake).
    2. **Intestinal symptoms:** Diarrhea, constipation, bleeding per rectum.
    3. **Hepatic Symptoms:** Jaundice (color of urine, stool, pruritis), ascites, hepatic coma, LL edema.
    4. **Symptoms due to hypersplenism:** Bleeding tendency, easy fatigability, recurrent Infections
    5. **Urinary Symptoms:** Hematuria, passage of stones Frequency: normally 5-6/day, 0-1/night
    6. **Genital Symptoms:**
       - Female: menstrual disturbances.
       - Male: impotence

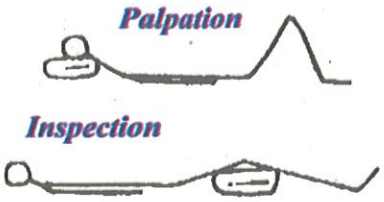
- **Trauma**: surgical or accidental.
- **Investigations & treatment.**

PAST HISTORY & FAMILY HISTORY As usual

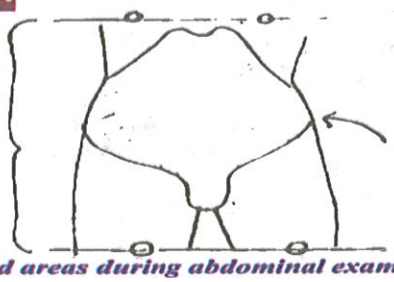
General examination

As general.

Local examination



Position of patient while examination



Exposed areas during abdominal examination

Fig. (50)

☆ ***Local areas are:*** Abdomen, back & external genitalia.
☆ ***Exposure:*** From nipple line to knee joints (or mid thigh).
☆ ***Patient lies:*** Supine with hips & knees slightly flexed. Back of the knees is supported by a pillow. Other special positions may be needed.
☆ ***Stand on:*** The right side of the abdomen (only the left kidney can be examined from either side).

Inspection:

A. Abdomen:

1. Contour: Inspected from patient's foot side.
- Normal = flat umbilical region with concave flank.
- Loss of waist e.g. Fatty abdomen.
- Bulging flanks e.g. ascites.
- Central distension e.g. pregnancy & ovarian cyst.
- Peripheral distension e.g. colonic obstruction.
- Generalized distension e.g. tense ascites, small intestinal obstruction, atonic abdomen.

N.B: Causes of abdominal distension could be summarized by 5F: Fat, Fluid, Flatus, Foetus, Fibroid (huge abdominal swelling).

- To differentiate distension due to intra abdominal causes from obesity look for the umbilicus: either everted or tucked in.

2. Localized bulge (Mass) as general sheet.
- Site: in relation to abdominal quadrants

The abdomen is divided into 9 zones by 4 lines:
- 2 midinguinal lines (vertical lines)
- Subcostal (midway between the umbilicus & xiphisternum) L3
- Intertubercular or intercrestal L5

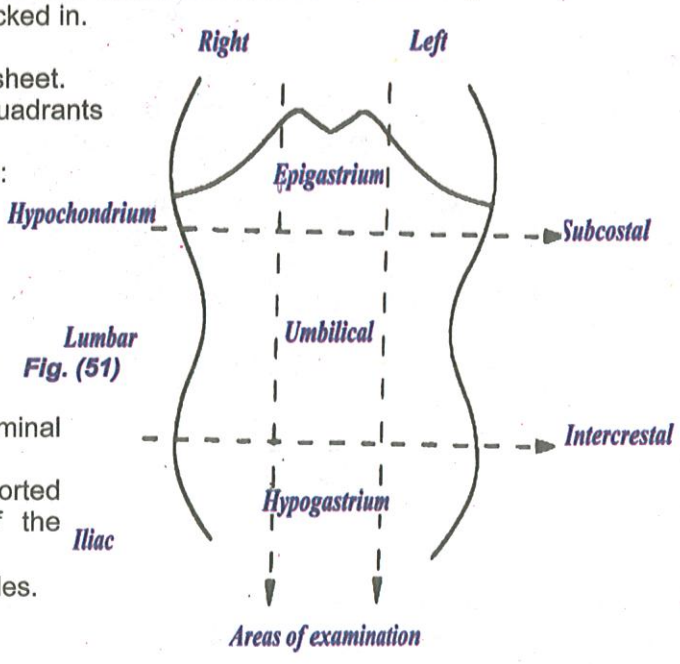


Fig. (51)

Surrounding structures: relation to abdominal muscles.
- Ask the patient to raise his head unsupported (or leg raising test = Carnett's test) if the swelling becomes:
  - More prominent = superficial to muscles.
  - Less prominent = deep to muscles.
  - No change = muscular swelling.

Special characters:

- Pulsations (transmitted or expansile?)
- Relation to respiratory movements:

Ask the patient to take deep inspiration & expiration and notice any movement of the swelling.

1- Moves up & down = intra abdominal & related to diaphragm, or related to organ related to it.
2- Moves anteroposterior = anterior wall swelling.
3- No movement = retroperitoneal or intra abdominal & fixed or intra abdominal but not related to diaphragm.

3. Movements (respiratory, intestinal, epigastric pulsations):

Respiratory movements are Abdominothoracic in males & Thoracoabdominal in females.

Loss of respiratory movement =irritation of parietal peritoneum as peritonitis or hemoperitoneum.

4. Vertical line:

a. Subcostal angle: (n 70-90):

Narrow in tall patients.

Obtuse in: Short patient, upper abdominal swelling & chronic increase in intra abdominal pressure.

b. Divarication of recti:

= Bulging of the linea alba with contraction of the abdominal muscles (raising head unsupported, or leg raising test (Carnett test) =weak anterior abdominal wall muscles or increased intra-abdominal pressure.

c. Umbilicus:

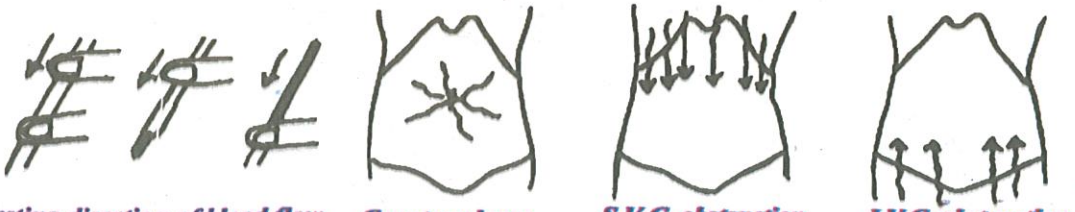
- **Site:** normally midway between xiphisternal junction &symphysis pubis or slightly shifted downwards (normally it's position is variable)
- If shifted downwards: swelling in upper abdomen.
- If shifted up: lower abdominal swelling.
- **Shape:** normally inverted.
  - Flat or everted: with increased intra-abdominal pressure.
  - Tucked in with obesity.
- Impulse on cough.
- Discharge.
- **Abnormality:** Dilated veins, fistula, nodules (Sister Joseph sign)

d. Hair distribution: Normally: in males, triangular with apex towards umbilicus & in females upper straight line.

Feminine distribution with excess oestrogen.

5. Skin:

a. Pigmentation: e.g. in pancreatitis Grey turner sign &Cullen's sign.
b. Scar (site, size, type of healing, impulse on cough), cautery marks.
c. Itching marks.
d. Herpes Zoster (vesicles).
h. Spider nevi (dilated arterioles).
i. Dilated veins (determine site & direction of blood flow).
j. Nodules (especially around umbilicus), Sister Joseph sign.
k. Campel Demorgan spots: internal malignancy especially stomach or pancreas.



Testing direction of blood flow *Caput medusae* *S.V.C. obstruction* *I.V.C. obstruction*

Fig. (52)

B. Back:

- Fullness of renal angles (=angle between the last rib & sacropspinalis muscle, normally concave).
- Spine deformities.
- Swelling e.g. secondaries, Pott's.

C. Genitalia:

Importance:

- Bilharzial mass.
- Varicocele (with renal mass).
- Testicular atrophy (LCF).
- Undescended testis (abdominal testis with malignant malformation).
- Testicular tumor (para-aortic lymph nodes).
- Epididimo-orchitis (pain referred to the ipsilateral iliac fossa).

Palpation:

☆Patient:

- Resting his head on pillow. Resting his arms by his side, his back sinks into couch.
- Draws his legs, this relaxes abdominal fascia & muscles (by obliteration of lumbar lordosis).
  - Tell the patient to relax and breath through mouth quietly & regularly.

☆Examiner

- His hands should be warm.
- Forearms &hands should be maintained in a horizontal plane with the front of the patient's abdomen. (The examiner may sit on a suitable chair or even kneel upon the floor).
- Palpation is done by the flexor surface of the fingers and not by the finger tips.
- The fore part of the hand should be gently dipped into the abdomen.
- When deep palpation in difficult, use two hands one over the other.

- Palpation: Better done during expiration.
- If there is complaint move systematically starting from the diagonal quadrant with that of the complaint.

1. Superficial palpation:

- Objectives:
  1. To get patient's confidence.
  2. To elecit for:
     a. tenderness (generalized or localized), rebound tenderness.
     b. Muscle guarding & rigidity:
     - Guard = voluntary reflex muscle contraction that disappears on expiration.
     - Rigidity = continuous muscle contraction even during expiration. Rigidity may be diffuse or localized.
     - No rigidty in post operative peritonitis (weak flappy muscle) & in some medical causes of acute abdomen e.g. Diabetic ketoacidosis, uraemia.
  3. To examine for superficial swelling especially hernia.

2. Deep palpation for:

1. Deep tenderness:
2. Swelling (as general sheet).

N.B.: What are the differences between parietal & intra abdominal swelling?
a. If swelling extends over the costal margin = parietal
b. Movement with respiration.
c. Relation to abdominal muscles.

3. Solid abdomen organs: See later.
4. Scrotal examination.
5. Back examination for: Tenderness swelling ,renal angles, spine.

Percussion:

For swelling, abdominal organs, ascites

✪ Auscultation:

1- Intestinal sounds: in lower right quadrant of abdomen, normally 3-5/min:
Absent in peritonitis, ileus
Hyperaudible & frequent in mechanical intestinal obstruction

2- Venous Hum: (Kenawi sign)
It is louder on inspiration below the xiphoid process in cases of Egyptian HSM.

Fig. (53)

3- Peritoneal rub: friction sound in perisplenitis
4- Bruit: along course of aorta, common & external iliac, renal or any vascular swellings
5- Succusion splash: as in pyloric obstruction

☆ Pelvic examination (P.R – P/V)

1. To detect masses in rectovesical or Douglas pouch
2. To determine relation of the swelling to pelvic organs
3. To detect rectal polypi, piles
4. To examine prostate, seminal vesicle, UB
5. Tenderness in pelvic appendicitis
6. P-V tenderness of the adenexa

Diagnosis

In case of abdominal swelling or pain:

1. **Anatomical** (system affected).
   - Extraabdominal (parietal).
   - Intra abdominal.
     a. Retroperitoneal (-ve symptoms & the only complaint is mass).
     b. Intraperitoneal

2. **Etiological & pathological:** e.g. lymphoma.

3. **Functional** & presence of complications. e.g. organ failure.
   In case of H.S.M.: compensated or decompensated
   a. vascular decompensation in case of: bleeding varices.
   b. Parynchematous decompensation in case of: liver cell failure.

In Case of Jaundice:

1. **Anatomical:** jaundice.
2. **Pathological:** hemolytic, obstructive or hepatocellular.
3. **Etiological:** e.g. Calcular or malignant.
4. **Functional:** manifestations of liver cell failure.

Now we will discuss in details:
1- Examination of liver, spleen, gall bladder & kidney.
2- Examination for ascites.

LIVER EXAMINATION

Surface anatomy:

- 1st point: left 5th intercostal space midclavicular line.
- 2nd point: right 5th rib midclavicular line.
- 3rd point: 7th rib right midaxillary line.
- 4th point: 11th rib right midaxillary line.
- 5th point: tip of right Costal cartilage(G.B. fundus)

Inspection: Refer to general sheet.

Palpation

➢ ***Normally:*** not palpable except in young children& may be the left lobe in very thin patient with lax abdomen

- **Left lobe:** extends in the midline to a point midway between umbilicus & xiphisternum
- **Right lobe:** along right costal margin. In young children (up to 3 y) the liver may be felt 1-2 fingers below its normal extent
- **Lower border** (light percussion) 2.5 cm below the costal margin in midclavicular line & midway between umbilicus & xiphisternum in middle line.

➢ ***Right lobe:***

Start palpation from the right iliac fossa; applying the right hand transversly (with index parallel to lower border) or directed directly upwards or with fingers directed towards patients left axila.

Move the hand up towards the right hypochondrium outside the right rectus muscle (tendinous intersections of rectus muscle may give false impression).
If the liver is felt below margin it is either enlarged or ptosed.

Determine characters of the liver.

- Bimanual examination of the liver: liver edge can be made more prominent by putting left hand under lower ribs and lifting them forward.
- Hooking method: stand at patients head & hook the fingers along the costal margin and ask the patient to respirate deeply.

➢ ***Left lobe:***

Palpate in the midline starting just below the umbilicus & move towards epigastrium.

Percussion

- Normally liver dullness extends from 6th rib to the costal margin in the mid axillary line.
- It is raised with
  a. Subphrenic abscess.
  b. Amebic liver abscess or hydatid cyst.

- **Upper border (Tidal percussion): Heavy percussion.**
  Start percussion from the right 2nd intercostals space (midclavicular line) & go down till you reach an intercostals space with impaired note then ask the patient to take deep inspiration & hold it then percuss again if:
  - Becomes resonant = upper border of liver.
  - Remains dull = supradiaphragmatic cause.

N.B. Normally the upper border of the liver reaches the 5th intercostals space (right midclavicular line)

- **Lower border (light percussion)**
  Normal. 2.5 cm below costal margin in midclavicular line & midway between umbilicus & xiphistemum in the middle line.
  Percuss for lower border of right or left lobes by light percussion as it is thin and intestine underneath.

N.B. Obliterated liver dullness:
- In cases of perforated viscus.
- Let the patient lies on his left side & percuss at the right midaxillary line starting from the sixth intercostal space and go down:
  - If dull = normal.
  - If obliterated (resonant) = perforated viscus.

Auscultation: refer to general sheet.

Comment on: (midclavicular line & middle line)

SS
- **Site:** intra-abdominal swelling in right hypochondrium & may extend to epigastrium
- **Size:** extend by the patient's fingers or by cm.

TT

SS
- **Surface** (smooth, nodular, irregular)
- **Shape** (localized or diffuse affection)

CE
- **Edge** (sharp, rounded) hand can't reach the upper border

SSS

Special characters: movement with respiration, pulsations.

Percussion: Dull on percussion. Its dullness is continuous with liver dullness.

SPLEEN EXAMINATION

Surface anatomy:
- It lies far back parallel to the Lt. 9th, 10th &11th ribs.
- The anterior end doesn't cross the left MAL.
- The posterior end lies about 4 cm from the spine

Important notes:
- ***Normally*** the spleen isn't palpable, if it's felt then it's enlarged > 3 times normal size
  So if it isn't palpable don't say it isn't enlarged
- Spleen on enlargement descends downwards towards the right Iliac fossa due to attachment of phrenico-colic ligament& direction of ribs
- Spleen may enlarge toward the left Iliac fossa in blood diseases as CML (due to adhesions to diaphragm) & after left hemicolectomy (removal of ligament)

- **Malignant spleen** may grow in any direction but never felt in renal angle
- **Enlarged spleen (<3 times normal size) may be diagnosed by:** Hooking, Palpation in the right lateral position, dullness of Traube's area
- Spleen may be normally palpable in the 1st 3 years of life
- **Normal splenic dullness** extends from midaxilary line to 4cm from the middle line of the back, from upper border of 9th rib to lower border of 11th rib.

Palpation:

Methods of palpation:

1. Start palpation from right iliac fossa and move up towards the left hypochondrium (patient is supine).
   - Ask the patient to respire quietly & deeply.
   - Determine characters of spleen.

2. Examination in Right position: (Bimanual ex.). Done when the spleen is not felt as above. Let patient. lies on his right side and leaning forwards. Apply your left hand to patient's back and push anteriorly; the finger tips of the right hand are put below the costal margin at the midclavicular line and ask the patient to respire deeply, if felt the comment should be: spleen is just palpable in the right lateral position & is … in consistency.

3. Hooking method: with patient in semisitting position, stand at head side of the patient & hook the left costal margin by your fingers of both hands and ask the patient to respire deeply.

4. Dipping method in tense ascites.

Percussion

- Percuss from right iliac fossa towards the left costal margin. Then continue towards the left mid axillary line.
- Spleen is dull on percussion with no band of resonance in front.
- If spleen is not felt, percuss the traube's area (exalude other causes of its dullness e.g. gastric, full stomach, cardiac, pulmonary, pleural, hepatic)

NB: Traube's area:

It's an area of tympanitic resonance corresponding to fundus of stomach

★**Boundaries:**

- Above: lower border of the left Lung
- Below: left costal margin
- Right: lower border of the left lobe of liver
- Left: anterior border of the spleen

★**Surface anatomy:**

- 1st point: left 5thintercostal space midclavicular line.
- 2nd point: left 8th intercostal space midclavicular line.
- 3rd point: left 11th intercostal space midaxillary line.
- 4th point: left 9th space midaxillary line.

Auscultation: Refer to general sheet.

Comment on:

SS

- **Site:** intra-abdominal swelling in left hypochondrium extending to …
- **Size:** by the Pt. Fingers or by cm from the costal margin

TT
SS

- **Surface:** smooth, irregular
- **Shape: oblong**

CE

- **Edge:** characters of the anterior (=medial) border, palpate notch if there is. Hand can't reach its upper border

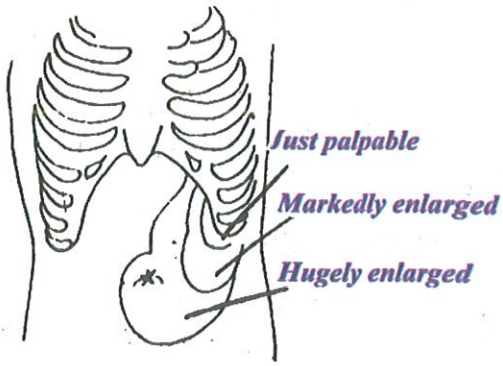
SSS

Special Character: movement with respiration, ballottement (anterior but not posterior)

Surrounding structures:

- Costal margin: finger can't normally be insinuated between it & spleen
- Renal angle: spleen is neither felt nor can be pushed to renal angle

Percussion: dull on percussion & its dullness is continuous with normal splenic dullness.



Splenic enlargment

GALL BLADDER EXAMINATION

Surface anatomy (fundus):

- At tip of 9th costal cartilage.
- A line drawn from left ASIS to umbilicus & extend up to meet the right costal margin at the point of gall bladder.
- At meeting of linea semilunaris & costal margin.
  - If hepatomegaly, it lies just below the liver along the right linea semilunaris.

Inspection.

Palpation.

Comment on:

S.S.: Sit Intra abdominal swelling in right hyochondrium.
C.E.: Consistency: cystic (usually)
Edge: Round lower border, no upper margin.
S.S.S.: Special character: moves up & down with respiration.
Surrounding structures: move from side to side.
Percussion: Dull & its dullness is continuous with liver dullness.

KIDNEY EXAMINATION

Surface anatomy:

Morrison's rectangle:

2 horizontal lines at the level of 11th thoracic & L3 spine, and 2 vertical lines 1.5 inches & 3.5 inches from the ML

Important points:

- Examination of the Kidney is never complete except after examination of renal angle &loin
- Renal angle: is the angle between the lower costal margin &sarcospinalis muscle. Normally It's empty &(=concave) not tender
- While all the abdominal organs are examined from the right side , the left kidney can be palpated from either sides
- Normally the right kidney is below the left by 2.5 cm

Inspection: Refer to general sheet

Palpation:

- ***Normally:*** Both kidneys can't be palpated however the lower pole of the right kidney may be palpated in thin individuals with deep inspiration as a well rounded structure.
  - Apply the opposite hand to the renal angle, start with the other hand from the iliac fossa.

- Kidney may be felt if swollen, if not felt, lift the flank by posterior hand & palpate by anterior hand beneath the epsilateral costal margin. If there is a mass push it posteriorly, renal mass is either felt in or can be pushed to the renal angle.

➢ ***Other methods of palpation:***
- Palpate while patient is leaning on sound side.
- Palpate in erect position: in cases of suspected nephroptosis.

✪ **Percussion:**
- Of the mass: dull with band of resonance (colon), its dullness is not continuous with that of liver or spleen.
- Of the renal angle: Normally it is resonant or with impaired note. In renal mass it is dull.

✪ **Comment on:**

S.S: Site: Intra abdominal swelling in right or left hypochondrium or lumber region.
Size
T.T:
S.S.: Shape: reinform usually.
Surface: usually lobulated.
C.E.: Consistency may be Cystic.
Edge: upper border could be palpated.
S.S.S.:
Special character - Move with respiration (esp. right kidney).
- Anterior & posterior ballottement

Percussion: See before.

What are the differences between the splenic & left renal masses?

	Spleen	Left kidney
SS: - Site - Size	Enlarge toward the umbilicus	Enlarge toward the left Iliac fossa (directly downward)
TT		
SS: - Shape - Surface	Oblong Smooth	Reniform Lobulated
CE: - Consistency - Edge	Firm Sharp anterior border with notch, you can't get it's upper border	Firm or cystic Rounded border, no notch, you can get it's upper border
SSS: - Special Characters - Surrounding structures - Percussion	Moves freely with respiration Anterior ballottement You can't insinuate your hand between it & costal margin Renal angle empty & it can't be pushed to it Resonant renal angle	Moves less with respiration. Anterior & posterior ballottement You can Full renal angle or it can be pushed to it Dull renal angle

NB:
Loin = space between the last rib & iliac crest
Flank = loin &its extension on sides of the trunk

EXAMINATION FOR ASCITES

Important notes:

1. Ascites = free fluid in the peritoneal cavity. Fluid gravitates to the most dependant part of the abdomen in different positions of the patient & intestine floats because of their air content.
2. Ascitic fluid < 500cc can't be detected clinically (by US)
3. Knee elbow position differs from knee chest position used in P-R & sigmoidoscopy.

Inspection: (refer to general sheet)

- Bulging flanks or granulized distension. (if marked).
- In tense ascites: shiny skin, stretched.
- Umbilicus: everted & shifted downwards.

Palpation: (refer to general sheet).

Palpation by dipping: A special technique used to palpate organs in case of marked ascites. The pads of fingers are placed over the abdomen, and by quick push the abdominal wall is depressed.

Percussion:

➢ ***More than 1 litre:*** **Shifting dullness.**

- Patient lies supine.
- Start from the epigastrium and go downwards to determine upper limit of the U-shaped dullness. Then percuss above this level in a transverse way below liver, and spleen, towards the flanks.
- If dull flank, ask the patient to turn on his side to an angle of about 45°, wait few seconds & percuss again.
- If resonant flanks = the dullness of suprapubic region is due to bladder mass.
- Percussion is done on both sides.

➢ ***From 1 litre to 500 cc:*** **Percuss in knee-elbow position.**

- At first percuss the umbilical region while the patient is supine, if dull, this method is useless.
- If resonant, turn patient to knee-elbow position & percuss again; if becomes dull = ascites < 1 litre.

➢ ***Tense ascites:*** **Transmitted thrill.**

- A fluid thrill is elecited by flicking one side of the abdomen with index finger & feeling vibrations, when they reach the other side of the abdomen with the other hand.
- Patient's (or assistant's) hand should be applied firmly to the abdomen at the umbilicus to prevent transmission of percussion waves in abdominal wall.

N.B: Fluid thrill is also present in cases of huge intra abdominal swellings.